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SPECIAL SCIENTIFIC REPORT–FISHERIES No. 414

UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

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ZOOPLANKTON VOLUMES OFF THE PACIFIC COAST, 1959

by

James R. Thrailkill

United States Fish and Wildlife Service
Special Scientific Report--Fisheries No. 414

April 1963

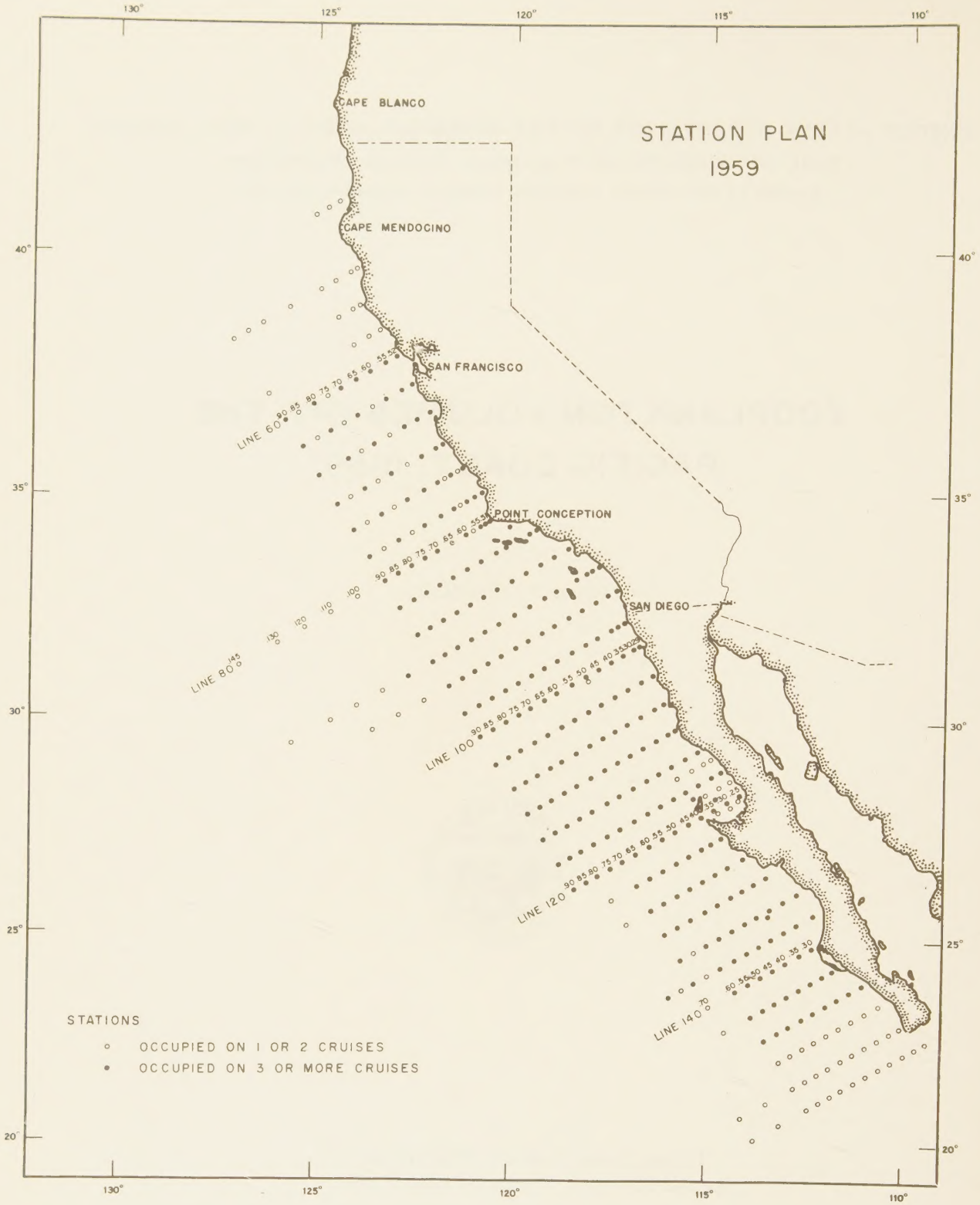

Figure 1.--Stations occupied on California Cooperative Oceanic Fisheries Investigations cruises during 1959.

ZOOPLANKTON VOLUMES OFF THE PACIFIC COAST, 1959

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ABSTRACT

Basic data on volumes of zooplankton off the Pacific coast in 1959 are given, together with data for all plankton hauls taken on survey cruises of the California Cooperative Oceanic Fisheries Investigations. Plankton volumes in survey area paralleled those of 1958 and averaged less than one-third as much as during 1951-56. Distribution charts showing relative areal zooplankton abundance by month are included.

This is the ninth of a series of annual data reports on the plankton volumes collected on survey cruises off the Pacific coast by the California Cooperative Oceanic Fisheries Investigations (CalCOFI). Six reports in this series, covering the period 1949 through 1955, appeared under the authorship of "Staff of the South Pacific Fishery Investigations" (1952, 1953, 1954a, 1954b, 1955) and contained basic data on the volume of zooplankton collected on monthly survey cruises. Three reports (Thrailkill, 1957, 1959, 1961) contained both basic data and monthly distribution charts of zooplankton volumes for 1956, 1957, and 1958. Charts illustrating the monthly and yearly distribution of plankton for the years 1949-55 were published by Thrailkill (1956).

CalCOFI research is sponsored by the California Marine Research Committee and carried out cooperatively by the Scripps Institution of Oceanography of the University of California, the Pelagic Fish Investigations of California Department of Fish and Game, the California Academy of Sciences, the Hopkins Marine Station of Stanford University, and the Bureau of Commercial Fisheries Biological Laboratory, La Jolla, California.

Names of the vessels participating on each of the CalCOFI cruises in 1959 are given in table 1. The *Black Douglas*, is operated by the Bureau of Commercial Fisheries Biological Laboratory, La Jolla, the other vessels by Scripps Institution of Oceanography. A chronological listing of the CalCOFI survey cruises for 1959, with information on the area covered and the number of stations occupied, is shown in table 2. The stations occupied during 1959 are shown in figure 1.

The plankton samples are used in connection with life history studies of the sardine and other commercially important or potentially important fishes, and also in connection with productivity and zoogeography studies in the eastern Pacific. The former investigations are being conducted by the Bureau of Commercial

Table 1.—Research vessels participating in CalCOFI Survey Cruises, 1959.

Month	Cruise number	Number vessels	*BLACK DOUGLAS*	*SPENCER F. BAIRD*	*HORIZON*	*ORCA*	*PAOLINA T.*	*STRANGER*
January	5901	3	X	X	--	X	--	--
February	5902	3	X	--	--	X	X	--
March	5903	3	--	--	--	X	X	X
April	5904	3	--	--	--	X	X	X
May	5905	3	X	--	--	X	X	--
June	5906	4	X	--	X	X	X	--
July	5907	3	X	--	--	X	X	--
August	5908	3[1]	X	--	--	X	--	--
September	5909	2	X	--	--	X	--	--
October	5910	3	X	X	--	X	--	--
November	5911	1	--	--	--	--	X	--
December	5912	1	--	--	--	X	--	--

[1]*Hugh M. Smith*, operated under Scripps Tuna Oceanography Research Program; participated cooperatively in the August cruise, occupying station lines 130-153.

Table 2.—Area covered and number of stations occupied on the monthly CalCOFI cruises during 1959.

Month	Cruise number	Area covered station lines	Number of stations occupied
January	5901	60-157	254
February	5902	73-137	172
March	5903	83-137	140
April	5904	60-147	250
May	5905	60-137	261
June	5906	77-137	214
July	5907	50-137	272
August	5908	77-153	242
September	5909	90- 93	33
	5909	110-137	42
October	5910	43-137	226
November	5911	77- 93	39
December	5912	77- 93	43

Fisheries, the latter by the Scripps Institution of Oceanography.

The methods and equipment for taking plankton hauls have been standard since 1951. The nets, constructed of No. 30 xxx grit gauze (an extra heavy silk bolting cloth) are 1 meter in diameter at the mouth and about 5 meters in length. The hauls are oblique from approximately 140 meters deep to the surface (depth of water permitting). This has been our standard method of taking plankton tows since 1951, so volumes are compared only with those taken from 1951 through 1958. During 1949 and 1950 the tows were taken from depths of about 70 meters to the surface (depth of water permitting).

The method used for determining the wet plankton volume of a sample by displacement is as follows: The plankton is separated from its preserving liquid (3-percent formalin) by filtering, allowed to drain, then placed into a graduated cylinder to which is added a known volume of 3-percent formalin. Two volumes are obtained for each sample: (1) the total volume of all plankton material and (2) the volume of smaller organisms after removal of larger organisms, such as jellies, fish, squid, salps, pyrosomes, larger mollusks, and larger crustaceans. "Larger" organisms are those with individual volumes greater than 5 cubic centimeters (except juvenile or adult fish).

The portion of the CalCOFI survey area most consistently occupied during the years of the surveys lies between Point Conception, California and Point San Juanico, Baja California, station lines 80-137 (fig. 1). This area has been divided into two approximately equal parts (80-107 and 110-137) for convenience in comparing 1959 plankton volumes with those of earlier years.

Coverage in these areas was usually made at monthly intervals, during the period of heavy sardine spawning, in the first 7 months of the year, and less frequently during the remaining 5 months of each year.

Average monthly plankton volumes in the area off southern California and adjacent northern Baja California (lines 80-107) for the years 1951 through 1959 are given in table 3. The months of August and September were not included for comparison in the northern area because of inadequate coverage during recent years. Except for June, July, and October, the monthly averages during 1959 were smaller than during any of the preceding years. Similar information for the southern area (lines 110-137) is given in table 4. The last 2 months of the year are omitted because of lack of consistent coverage.

The 1959 plankton volumes are compared graphically with the average plankton volumes taken between 1951 and 1956, and with those taken during 1958. The year 1957, not included in figure 2, appears to be a transition year between the years of high and low plankton volumes.

In the northern area (lines 80-107) average plankton volumes during the 6-year period (1951-56) were greatest during the summer months. The 1958 and 1959 plankton volumes followed the same trend (on a reduced scale), averaging only one-third the average plankton volumes taken during 1951-56. The comparatively high plankton volumes taken in this area during October 1959 were due to an influx of tunicates (primarily small salps) in the southern California region. Tunicates declined again during November and December, and the average plankton volumes were the smallest on record.

In the southern area (lines 110-137) the plankton volumes were the smallest on record. In only 4 of the 10 months were smaller volumes recorded previously, these in 1958.

The principal table in this report (table 5) serves a twofold purpose. It is (1) a record of basic information for all plankton hauls made during 1959, and (2) a record of the volume of plankton obtained in each haul. The information given for each plankton haul includes station number, position, date and time of collection, volume of water strained, depth of haul, and plankton volume.

The distribution charts in this report are based on the volume of smaller organisms.

Table 3. - Average monthly plankton volumes in the area off southern California and adjacent northern Baja California (lines 80-107) for the months of January through July and October through December, 1951-1959.

Year	Jan.	Feb.	Mar.	April	May	June	July	Oct.	Nov.	Dec.
1951-56 ave.	163	193	166	185	264	362	514	137	142	124
1951	198	140	98	133	143	187	70	68	73	60
1952	109	317	205	151	152	228	234	130	95	Not occ.
1953	122	150	247	231	448	621	1369	129	121	92
1954	97	199	144	134	193	331	255	147	Not occ.	95
1955	102	157	135	195	230	353	350	114	Not occ.	202
1956	351	195	169	264	420	453	808	234	278	173
1957	Not occ.	267	424	518	188	134	128	87	78	42
1958	61	53	72	62	90	91	97	36	46	66
1959	37[1]	41	31	62	63	100	102	111	43	42

Table 4. - Average monthly plankton volumes in the area off central Baja California (lines 110-137) for the months of January through October, 1951-1959.

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.
1951-56 ave.	100	120	124	244	305	342	306	271	171	171
1951	50	55	50	62	85	104	85	140	124	191
1952	81	69	123	122	128	159	311	392	233	107
1953	75	101	142	182	223	295	232	276	134	181
1954	75	101	69	197	130	178	178	171	Not occ.	186
1955	101	138	146	503	630	492	289	Norpac	Not occ.	188
1956	219	258	214	395	632	824	743	374	192	Not occ.
1957	121	183	375	279	275	195	147	126	158	146
1958	78	83	54	63	55	80	55	86	52	52
1959	47[1]	32	48	42	54	83	56	61	76	55

Volumes for 1959 are underlined when they are the lowest in the series of 9 years.

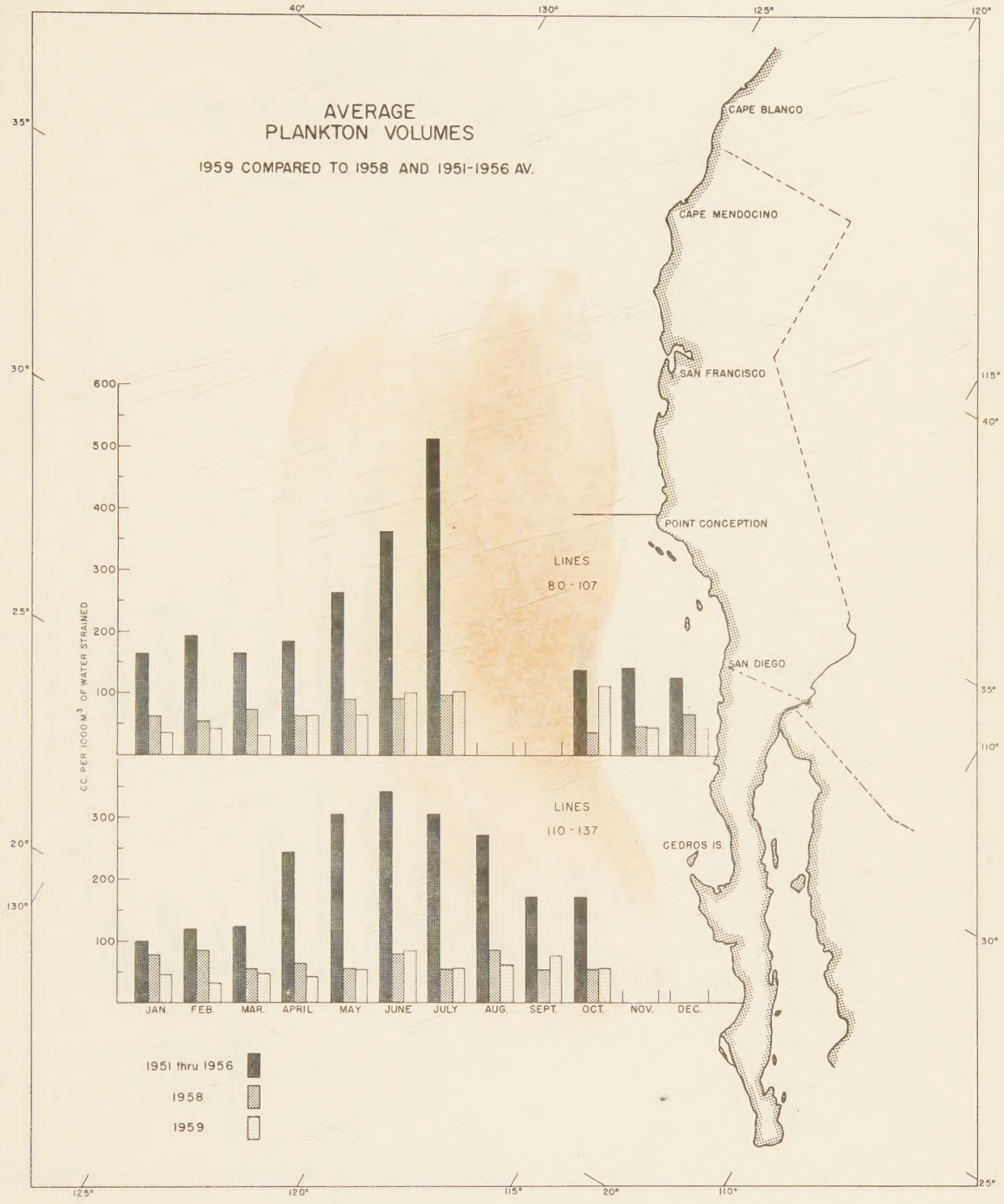

Figure 2.--Average plankton volumes in 1959, by month, compared with average volumes 1951-1956, and average volumes in 1958, for the two areas shown on map.

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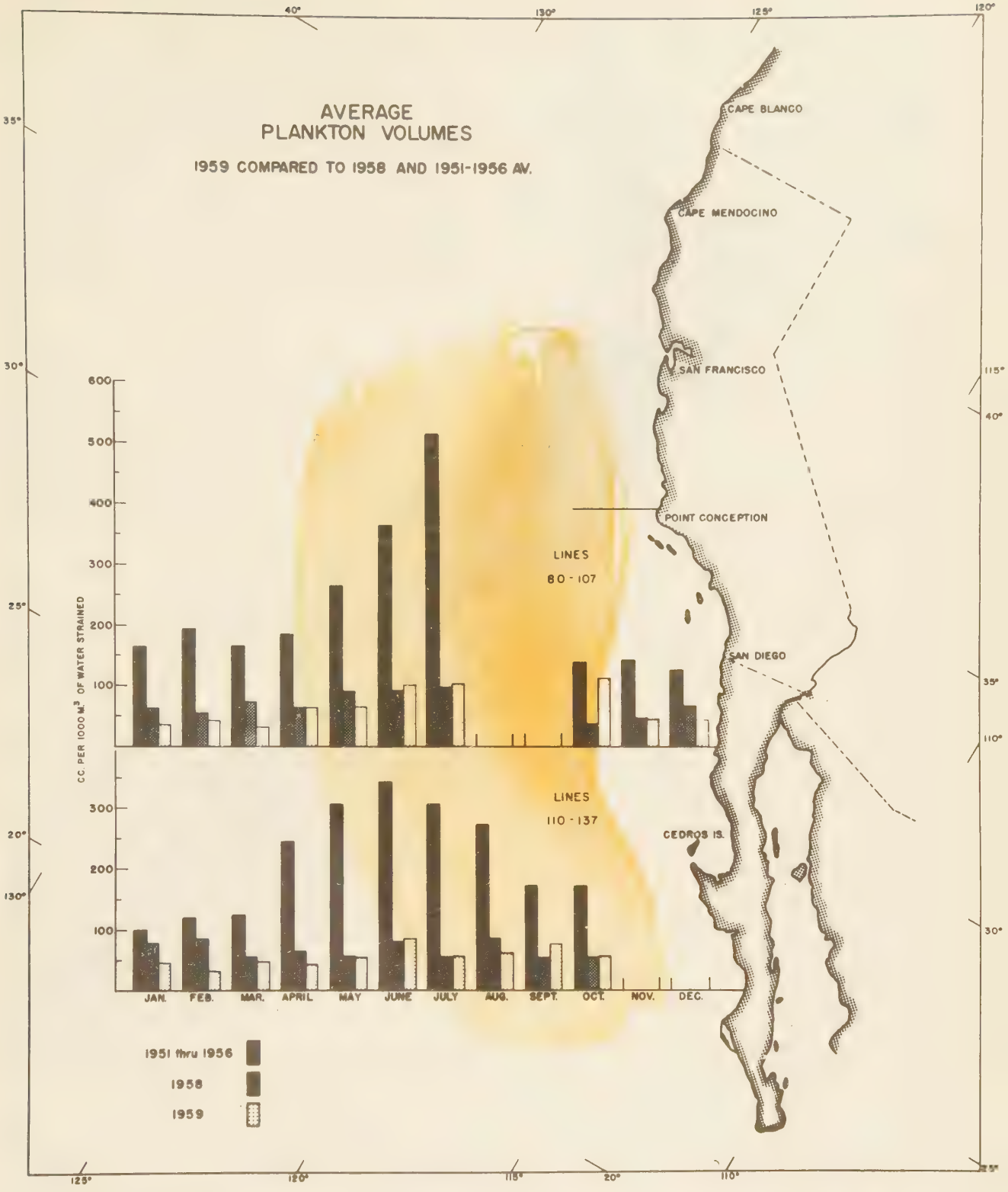

Figure 2.--Average plankton volumes in 1959, by month, compared with average volumes 1951-1956, and average volumes in 1958, for the two areas shown on map.

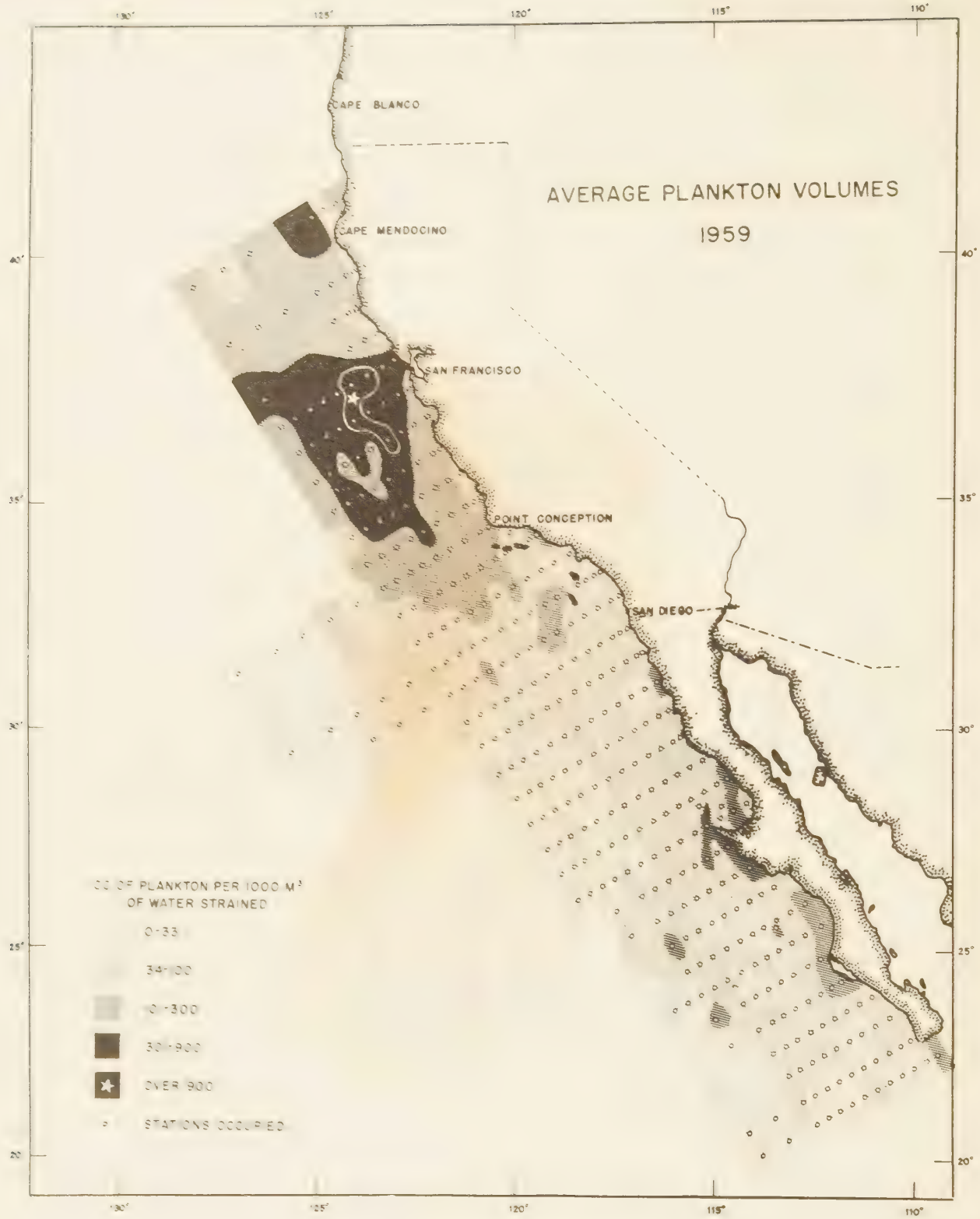

Figure 3.--Average plankton volumes, 1959.

In order to compare concentrations of plankton, five categories of abundance are used: (1) very light, 0-33 cc. of plankton per 1,000 $m.^3$ of water strained, (2) light, 34-100 cc. of plankton, (3) moderate, 101-300 cc. of plankton, (4) heavy, 301-900 cc. of plankton, (5) very heavy, more than 900 cc. of plankton. The average plankton volume at each station during the year is shown in figure 3. The distribution and relative abundance of plankton on each survey cruise are shown in figures 4 through 15.

The author gratefully acknowledges the cooperation given by Scripps Institution of Oceanography in the collection of data at sea. Most personnel of the Bureau of Commercial Fisheries Biological Laboratory, La Jolla, California, contributed to the collection and processing of the plankton material.

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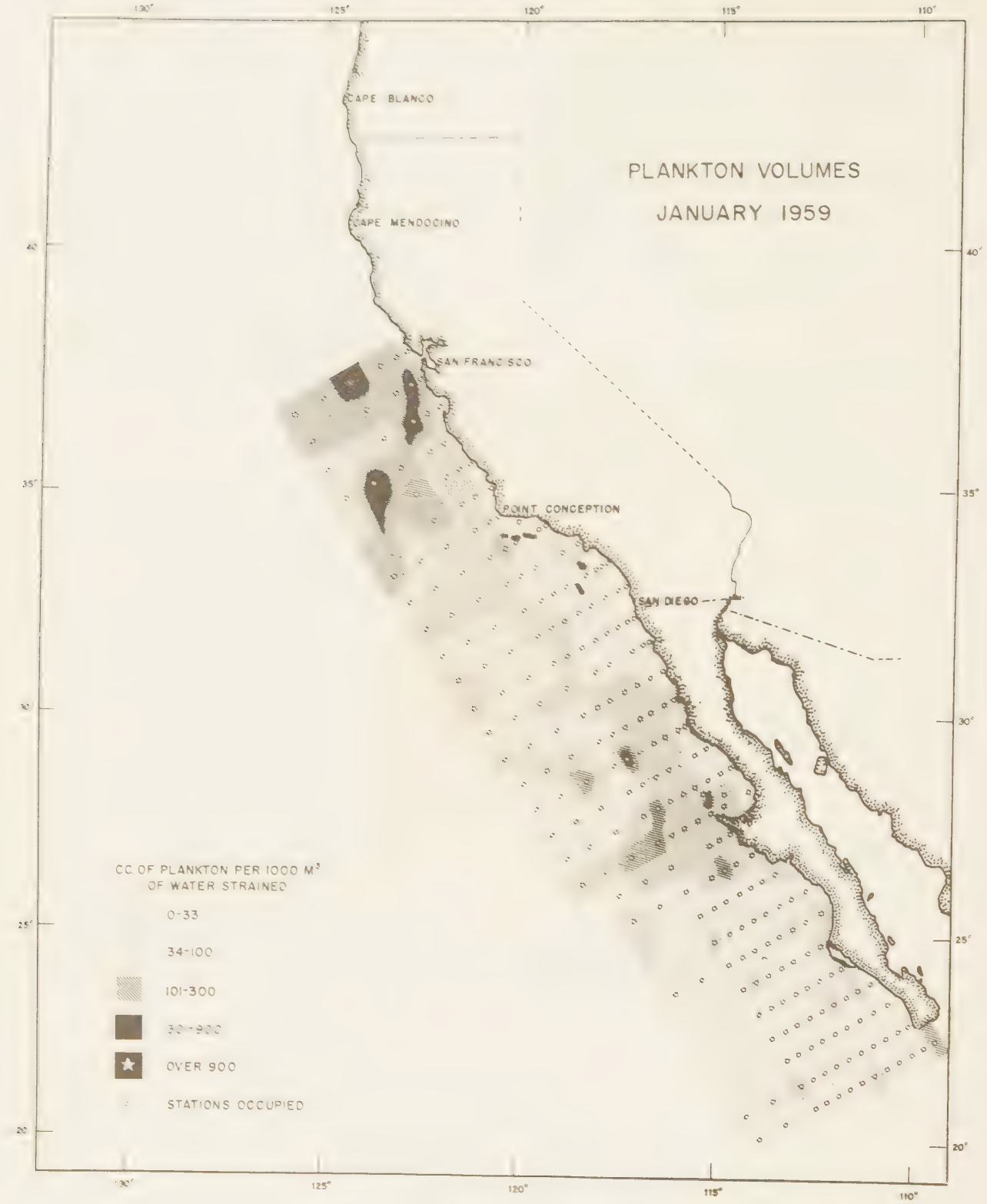

Figure 4.--Plankton volumes, January 1959.

Plankton volumes, Cruise 5901, January 1959

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
60.52	37°53.5'	123°01.5'	I-17	0048	0056	295	0-78	54	54
60.55	37°47.5'	123°15'	I-17	0257	0307	362	0-94	290	290
60.60	37°37'	123°38'	I-17	0646	0700	499	0-135	152	152
60.70	37°21'	124°22'	I-17	1140	1154	556	0-133	714	714
60.80	36°58.5'	125.02'	I-17	1741	1755	516	0-136	182	182
60.90	36°37'	125°47'	I-17	2326	2340	490	0-141	153	153
63.52	37°19'	122°36.7'	I-16	2010	2015	192	0-49	287	287
63.55	37°12.6'	122°49.8'	I-16	1806	1820	485	0-139	419	419
63.60	37°02.2'	123°12.6'	I-16	1506	1520	488	0-143	109	109
63.70	36°42.5'	123°55'	I-16	0926	0941	500	0-138	276	220
63.90	36°08'	125°22.6'	I-18	0445	0459	443	0-146	162	162
67.50	36°49'	122°04.6'	I-15	1247	1258	383	0-94	99	99
67.55	36°39'	122°26'	I-15	1741	1756	497	0-139	314	290
67.60	36°29'	122°47.5'	I-15	2150	2205	492	0-140	646	646
67.70	36°07.8'	123°30'	I-16	0400	0415	485	0-143	84	84
67.90	35°38'	124°57.0'	I-18	0940	0954	451	0-146	55	55
70.55	36°03'	122°02'	I-21	1001	1016	493	0-146	43	43
70.60	35°53'	122°23'	I-21	1316	1330	511	0-139	63	63
70.70	35°36'	123°05.8'	I-21	1826	1840	501	0-138	231	231
70.80	35°13'	123°48'	I-18	2206	2221	486	0-140	691	691
70.90	34°53'	124°28'	I-18	1631	1646	490	0-137	63	63
73.51	35°35.5'	121°21'	I-22	1041	1055	502	0-137	22	22
73.55	35°27.5'	121°37.5'	I-22	0846	0901	503	0-141	40	40
73.60	35°18'	121°58.4'	I-22	0511	0526	467	0-141	71	71
73.70	34°58.2'	122°40'	I-22	0005	0019	500	0-141	104	104
77.50	35°04.4'	120°52'	I-22	1506	1520	510	0-142	20	20
77.55	34°54.5'	121°13'	I-22	1816	1830	504	0-142	63	63
77.60	34°44'	121°34'	I-22	2110	2124	549	0-127	46	46
77.70	34°24.2'	122°16'	I-23	0215	0230	472	0-139	119	119
80.52	34°25.1'	120°35'	I-23	1115	1130	532	0-129	23	23
80.55	34°19'	120°48'	I-23	1316	1331	508	0-140	61	61
80.60	34°09'	121°09'	I-23	1611	1626	506	0-139	55	55
80.70	33°49'	121°51'	I-23	2101	2116	535	0-130	45	45
80.80	33°29'	122°32'	I-24	0215	0230	504	0-141	32	32
80.90	33°07'	123°12.7'	I-24	0715	0730	522	0-139	173	173
82.47	34°15'	119°58'	I-25	1400	1414	479	0-139	13	13
83.40	34°14'	119°22'	I-25	1834	1837	96	0-19	84	84
83.43	34°08'	119°34'	I-25	1656	1711	488	0-122	33	33
83.51	33°52'	120°07.5'	I-25	0955	1010	482	0-146	25	25

Plankton volumes, Cruise 5001, January 1950.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
83.55	33°44'	120°24.4'	I-25	0720	0734	486	0-142	115	115
83.60	33°35.2'	120°45.5'	I-25	0326	0340	472	0-141	89	89
83.70	33°14'	121°26'	I-24	2211	2226	485	0-142	58	58
83.80	32°54.5'	122°07.5'	I-24	1711	1726	517	0-145	41	41
83.90	32°34.5'	122°48'	I-24	1215	1229	506	0-138	12	12
87.35	33°50'	118°37.5'	I-25	2351	0006	453	0-145	49	49
87.40	33°40'	118°58.5'	I-26	0330	0345	469	0-141	38	38
87.45A			Sample lost.						
87.45B			Sample lost.						
87.50	33°20'	119°39.5'	I-26	0803	0811	238	0-71	21	21
87.55	33°12.5'	120°02.2'	I-26	1211	1225	464	0-148	17	17
87.60	32°58'	120°19'	II-8	2126	2141	474	0-126	55	55
87.70	32°45'	120°43.5'	II-8	1756	1810	459	0-140	94	94
87.80	32°23'	121°30'	II-8	1136	1150	481	0-136	37	37
87.90	32°01'	122°19'	II-8	0610	0620	465	0-140	52	52
90.28	33°28.5'	117°46.7'	I-27	1756	1811	481	0-141	33	33
90.30	33°24.5'	117°55'	I-27	1541	1556	490	0-142	16	16
90.32	33°20'	118°03'	I-27	1411	1426	497	0-139	14	14
90.37	33°10.5'	118°23.5'	I-27	0846	0901	503	0-140	16	16
90.45	32°54.5'	118°56'	I-27	0415	0430	576	0-141	12	12
90.50	32°44.6'	119°16.5'	I-27	0040	0054	525	0-138	17	17
90.55	32°34.8'	119°36.8'	I-26	1730	1744	523	0-128	23	23
90.60	32°28.5'	119°56'	II-7	0726	0740	486	0-140	41	41
90.70	32°10'	120°37.5'	II-7	1251	1305	488	0-134	21	21
90.80	31°44.5'	121°19.5'	II-7	1846	1900	475	0-141	27	27
90.90	31°24.5'	122°00'	II-8	0006	0020	472	0-137	30	30
93.27	32°54.5'	117°21.8'	I-19	1716	1730	494	0-138	28	28
93.30	32°50'	117°30'	I-19	1511	1525	486	0-141	10	10
93.35	32°41.5'	117°47.5'	I-19	1236	1250	488	0-141	2	2
93.40	32°32'	118°11.5'	I-19	1006	1020	542	0-131	6	6
93.45	32°21'	118°32'	I-19	0631	0646	503	0-141	24	24
93.50	32°11'	118°52'	I-19	0356	0410	479	0-141	52	52
93.55	32°01'	119°13'	I-19	0016	0031	459	0-147	37	37
93.60	31°51'	119°33'	I-18	2136	2150	526	0-135	34	34
93.70	31°31'	120°15'	I-18	1606	1620	547	0-136	33	33
93.80	31°07.5'	120°55'	I-18	1031	1046	507	0-140	26	26
93.90	30°47'	121°33'	I-18	0406	0420	524	0-142	44	44
97.30	32°15'	117°08'	I-15	0429	0433	155	0-33	13	13
97.32	32°11.5'	117°16.5'	I-15	0911	0925	544	0-133	2	2

Plankton volumes, Cruise 5901, January 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
97.35	32°05.5'	117°28.5'	I-16	1406	1421	535	0-143	1	1
97.40	31°52'	117°46'	I-16	1706	1721	506	0-143	6	6
97.45	31°44'	118°05.5'	I-16	2011	2026	548	0-131	26	26
97.50	31°30'	118°35.5'	I-16	0011	0026	508	0-141	20	20
97.55	31°19'	118°59'	I-17	0306	0320	511	0-141	51	51
97.60	31°08'	119°22'	I-17	0636	0645	522	0-141	23	23
97.70	30°52.5'	119°52'	I-17	1006	1020	539	0-131	20	20
97.80	30°34.5'	120°24'	I-17	1556	1610	490	0-145	22	22
97.90	30°14'	121°10'	I-17	2206	2220	530	0-131	47	47
100.29	31°42.5'	116°43.5'	I-14	2246	2301	531	0-130	23	23
100.30	31°41.5'	116°47'	I-14	2206	2221	550	0-134	31	31
100.35	31°31.5'	117°06'	I-14	1836	1851	533	0-142	11	11
100.40			Sample spoiled.						
100.45	31°14'	117°49'	I-14	1156	1210	564	0-132	2	2
100.50	31°02.5'	118°13'	I-14	0811	0826	565	0-133	27	27
100.55			Lost net.						
100.60	30°44'	118°49'	I-14	0111	0126	511	0-142	51	51
100.70	30°23'	119°38'	I-13	1806	1820	502	0-142	34	34
100.80	30°08'	120°09'	I-13	1256	1310	514	0-140	19	19
100.90	29°50'	120°52'	I-13	0736	0751	510	0-138	16	16
103.30	31°05.1'	116°25'	I-11	1028	1036	353	0-63	6	6
103.35	30°55.5'	116°45.5'	I-11	1411	1425	528	0-141	6	6
103.40	30°45.5'	117°04'	I-11	1921	1936	511	0-140	72	72
103.45	30°31'	117°21'	I-11	2206	2221	573	0-129	52	52
103.50	30°18'	117°39'	I-12	0206	0220	509	0-140	45	45
103.55	30°03'	118°00'	I-12	0426	0441	476	0-140	55	55
103.60	29°50'	118°20'	I-12	0756	0811	548	0-126	22	22
103.70	29°31'	119°13'	I-12	1451	1506	486	0-140	23	23
103.80	29°16'	119°41'	I-12	1916	1931	522	0-141	15	15
103.90	29°10'	120°24'	I-12	0111	0125	528	0-140	70	70
107.32	30°26'	116°11.5'	I-11	0447	0458	382	0-102	42	42
107.35	30°26.5'	116°22'	I-11	0226	0241	507	0-143	34	34
107.40	30°15.2'	116°41.5'	I-10	2226	2241	534	0-132	66	66
107.45	30°04'	117°02.5'	I-10	1906	1920	514	0-141	58	58
107.50	29°53'	117°23.5'	I-10	1546	1601	507	0-143	43	43
107.55	29°47'	117°39'	I-10	1251	1305	523	0-138	31	31
107.60	29°32'	118°09'	I-10	0911	0926	544	0-132	31	31
107.70	29°13'	118°50'	I-10	0216	0231	509	0-142	59	59
107.80	28°53'	119°22.5'	I-9	2006	2021	555	0-134	41	41

Plankton volumes, Cruise 5901, January 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
107.90	28°33'	119°56'	I-9	1406	1420	502	0-138	14	14
110.33	29°49.9'	115°52'	I-7	1318	1326	254	0-75	16	16
110.35	29°46.5'	116°00'	I-7	1536	1551	528	0-142	13	13
110.40	29°34.5'	116°21'	I-7	1926	1941	511	0-140	67	67
110.45	29°23'	116°39.5'	I-7	2146	2201	622	0-128	82	82
110.50	29°12'	116°58'	I-8	0136	0150	515	0-139	78	78
110.55	29°01.5'	117°16'	I-8	0416	0431	500	0-142	544	414
110.60	28°51'	117°35'	I-8	0756	0811	556	0-130	31	31
110.70	28°36'	118°18'	I-8	1941	1956	536	0-128	105	105
110.80	28°16'	118°55'	I-9	0056	0110	509	0-145	55	26
110.90	27°55.5'	119°31.5'	I-9	0726	0741	591	0-120	14	14
113.30	29°22.5'	115°17.5'	I-7	1539	1544	277	0-36	18	18
113.35	29°12'	115°39'	I-7	1826	1841	709	0-93	28	28
113.40			Sample lost.						
113.45	28°50.2'	116°19'	I-8	0011	0025	(572)	0-122	(68)	(68)
113.50	28°39'	116°38.3'	I-8	0332	0342	420	0-126	83	83
113.55	28°28'	116°58.3'	I-8	0541	0555	570	0-120	33	33
113.60	28°16.5'	117°16.5'	I-8	0941	0956	544	0-134	33	33
113.70	28°02'	117°55.5'	I-8	1421	1436	539	0-137	17	17
113.80	27°42.2'	118°32.6'	I-8	1856	1911	720	0-92	22	22
113.90	27°22.5'	119°13.5'	I-8	2342	2355	497	0-149	32	32
117.26	28°55.7'	114°40.7'	I-10	2158	2205	312	0-60	16	16
117.30	28°48.2'	114°55.7'	I-10	1957	2006	358	0-81	22	22
117.35	28°38'	115°16'	I-10	1746	1801	504	0-132	30	30
117.40	28°27.5'	115°36.5'	I-10	0546	0600	511	0-140	57	57
117.45	28°17.5'	115°55.5'	I-10	0251	0305	525	0-145	59	59
117.50	28°07.2'	116°15.2'	I-9&10	2351	0005	622	0-128	71	71
117.55	27°57.4'	116°35'	I-9	2051	2106	514	0-145	136	136
117.60	27°48.7'	116°53'	I-9	1846	1901	524	0-140	42	42
117.70	27°27.6'	117°33'	I-9	1341	1354	522	0-134	17	17
117.80	27°09'	118°13.4'	I-9	0856	0910	501	0-144	20	20
117.90	26°49.5'	118°53.7'	I-9	0416	0431	539	0-136	24	24
118.39	28°18.5'	115°23.8'	I-10	0756	0810	595	0-111	64	64
119.33	28°17.7'	114°54.7'	I-11	0637	0646	361	0-88	64	64
120.25	28°22.7'	114°15.5'	I-11	0218	0225	305	0-52	16	16
120.30	28°12'	114°34.6'	I-11	0428	0436	315	0-73	35	35
120.35	28°02.7'	114°54'	I-11	0828	0836	363	0-72	44	44
120.40	27°56.5'	115°13.8'	I-11	2004	2008	141	0-33	57	57
120.45	27°43'	115°33'	I-11	2246	2300	517	0-137	52	52

Plankton volumes, Cruise 5901, January 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
120.50	27°32.7'	115°53.5'	I-12	0151	0205	605	0-126	98	98
120.55	27°23'	116°14'	I-12	0356	0411	519	0-129	46	46
120.60	27°13.8'	116°34.6'	I-12	0651	0700	510	0-130	104	104
120.70	26°50.4'	117°14'	I-12	1101	1115	494	0-135	144	144
120.80	26°30.5'	117°49'	I-12	1516	1530	523	0-134	38	38
120.90	26°12.6'	118°27.7'	I-12	1941	1956	492	0-139	73	73
123.37	27°24'	114°40'	I-14	0403	0411	(297)	0-63	(40)	(40)
123.42	27°14.2'	114°59.7'	I-14	0051	0106	562	0-133	64	64
123.45	27°08'	115°11'	I-13	1856	1911	533	0-136	62	62
123.50			Sample spoiled.						
123.55			Sample lost.						
123.60	26°39.3'	116°14.7'	I-13	1011	1026	543	0-135	37	37
123.70	26°20'	116°51.5'	I-13	0626	0640	508	0-140	1041	98
123.80	25°59.5'	117°26'	I-13	0126	0141	516	0-134	33	33
127.34	26°55.5'	114°06'	I-14	2258	2306	340	0-78	62	62
127.40	26°42.7'	114°30.5'	I-15	0206	0220	473	0-149	66	66
127.45	26°32'	114°51'	I-15	0421	0435	547	0-127	117	117
127.50	26°21.2'	115°11.5'	I-15	0716	0731	522	0-137	38	38
127.55			Occupied. Sample not quantitative.						
127.60	26°03'	115°46.5'	I-15	1201	1215	522	0-134	17	17
127.70	25°43.5'	116°26'	I-15	1626	1641	491	0-143	29	29
127.80	25°24'	117°02.2'	I-15	2046	2100	516	0-144	54	54
130.30	26°29'	113°29'	I-16	2118	2125	287	0-71	66	66
130.35	26°17'	113°54'	I-16	1826	1841	516	0-137	23	23
130.40	26°08'	114°11.5'	I-16	1546	1600	555	0-136	7	7
130.45	25°59'	114°30'	I-16	1306	1321	512	0-141	14	14
130.50	25°50.6'	114°46'	I-16	1101	1116	547	0-135	11	11
130.55	25°42'	115°06.7'	I-16	0816	0830	614	0-115	16	16
130.60	25°30'	115°27.5'	I-16	0551	0606	581	0-114	26	26
133.25	26°03.5'	112°47.4'	I-17	0128	0136	306	0-64	20	20
133.30	25°53.5'	113°09'	I-17	0401	0416	534	0-127	26	26
133.35	25°44.2'	113°29'	I-17	0621	0635	799	0-76	18	18
133.40	25°34.5'	113°45.5'	I-17	1016	1036	602	0-121	7	7
133.45	25°25.2'	114°04.5'	I-17	1226	1241	516	0-140	14	14
133.50	25°16'	114°24'	I-17	1511	1526	564	0-130	11	11
133.55	25°06'	114°42.5'	I-17	1726	1741	604	0-124	30	30
133.60	24°55'	115°02'	I-17	2011	2025	597	0-126	52	52
137.23	25°33.7'	112°20.5'	I-19	0843	0852	335	0-70	39	39
137.30	25°20.2'	112°46.2'	I-19	0536	0551	572	0-125	10	10

Plankton volumes, Cruise 5901, January 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
137.35	25°10'	113°05.7'	I-19	0306	0321	498	0-141	56	56
137.40	25°00'	113°24.4'	I-19	0011	0025	532	0-141	60	30
137.45	24°50.5'	113°43.4'	I-18	2126	2140	589	0-132	19	19
137.50	24°41'	114°02.4'	I-18	1901	1916	546	0-134	31	31
137.55	24°32'	114°19'	I-18	1636	1651	608	0-127	15	15
137.60	24°21'	114°39'	I-18	1406	1420	497	0-144	12	12
137.70	24°00'	115°17.3'	I-18	0931	0946	583	0-127	22	22
137.80	23°39'	115°57'	I-18	0456	0511	526	0-130	11	11
140.30	24°45'	112°24'	I-19	1417	1427	425	0-99	40	40
140.35	24°35'	112°42.3'	I-19	1646	1701	556	0-126	11	11
140.40	24°24.3'	113°01'	I-19	1931	1946	476	0-141	19	19
140.45	24°13.4'	113°21.2'	I-19	2146	2201	528	0-132	30	30
140.50	24°04'	113°38.3'	I-20	0026	0041	581	0-125	26	26
140.55	23°53.7'	113°57'	I-20	0236	0251	561	0-108	37	37
140.60	23°43.2'	114°15.6'	I-20	0536	0550	456	0-131	13	13
143.26	24°19'	111°48'	I-21	0428	0436	280	0-46	75	75
143.30	24°09.5'	112°03.7'	I-21	0211	0226	590	0-118	24	24
143.35	24°00'	112°22'	I-20	2311	2325	534	0-140	13	13
143.40	23°49.5'	112°42.4'	I-20	2011	2026	627	0-109	13	13
143.45	23°41'	113°05.5'	I-20	1706	1720	535	0-134	30	30
143.50	23°31'	113°23'	I-20	1451	1506	527	0-138	25	25
143.55	23°21.5'	113°39.2'	I-20	1211	1225	594	0-128	13	13
143.60	23°11'	113°56'	I-20	0951	1006	572	0-125	9	9
147.20	23°56'	111°04.2'	I-21	1727	1738	554	0-115	23	23
147.25	23°46.4'	111°22.5'	I-21	2011	2026	614	0-122	39	39
147.30	23°35'	111°44'	I-21	2336	2350	520	0-148	21	21
147.35	23°26'	112°02.5'	I-22	0151	0206	479	0-144	61	61
147.40	23°16'	112°22.5'	I-22	0446	0501	574	0-123	24	24
147.45	23°06.5'	112°42.6'	I-22	0701	0715	584	0-121	15	15
147.50	22°57'	112°54.5'	I-22	0911	0926	533	0-140	19	19
147.55	22°47.8'	113°13.2'	I-22	1126	1141	565	0-139	11	11
147.60	22°36'	113°30.7'	I-22	1346	1401	521	0-138	13	13
150.19	23°22.5'	110°41'	I-23	1556	1611	558	0-131	16	16
150.25	23°11.8'	111°01.2'	I-23	1316	1330	570	0-131	11	11
150.30	23°01'	111°20.5'	I-23	1011	1026	525	0-139	10	10
150.35	22°52.5'	111°42'	I-23	0726	0741	573	0-127	5	5
150.40	22°42.5'	111°59.2'	I-23	0501	0525	534	0-141	28	28
150.45	22°32.3'	112°17'	I-23	0226	0240	548	0-133	18	18
150.50	22°22.3'	112°34.8'	I-23	0111	0125	514	0-145	12	12

Plankton volumes, Cruise 5901, January 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained Total	Vol. per 1,000 m^3 strained Small organism
						m^3	m.	cc.	cc.
150.55	22°12.4'	112°52.4'	I-22	2126	2141	616	0-123	15	15
150.60	22°01.2'	113°12'	I-22	1901	1916	476	0-142	15	15
153.16	22°55'	110°07.4'	I-23	2016	2131	556	0-139	32	32
153.20	22°47'	110°22'	I-23	2216	2230	506	0-138	18	18
153.25	22°33.6'	110°41.5'	I-24	0105	0121	487	0-148	25	25
153.30	22°26.4'	111°01'	I-24	0351	0406	494	0-142	24	24
153.35	22°16'	111°19.6'	I-24	0606	0620	547	0-128	15	15
153.40	22°07.3'	111°36.6'	I-24	0846	0900	517	0-145	14	14
153.45	21°57.5'	111°55'	I-24	1046	1101	524	0-140	13	13
153.50	21°48'	112°13.5'	I-24	1331	1346	517	0-144	10	10
153.55	21°38.3'	112°32'	I-24	1546	1600	581	0-128	7	7
153.60	21°29'	112°50'	I-24	1846	1900	543	0-137	41	41
153.70	21°06.2'	113°29'	I-24	2336	2351	503	0-146	14	14
153.80	20°44'	114°08'	I-25	0416	0430	496	0-143	14	14
157.10	22°33'	109°23.2'	I-27	0301	0316	484	0-144	101	101
157.15	22°23'	109°41.4'	I-26	1946	2001	468	0-149	30	30
157.20	22°14'	110°01.8'	I-26	1651	1706	554	0-138	20	20
157.25	22°03.6'	110°19.5'	I-26	1411	1426	567	0-130	23	23
157.30	21°54'	110°36.5'	I-26	1151	1206	573	0-132	19	19
157.35	21°43.5'	110°55.5'	I-26	0841	0855	626	0-142	54	54
157.40	21°31.5'	111°16.3'	I-26	0610	0626	553	0-135	24	24
157.45	21°22'	111°34.4'	I-26	0306	0321	534	0-139	15	15
157.50	21°12.6'	111°52'	I-26	0041	0056	537	0-139	11	11
157.55	21°03'	112°09.4'	I-25	2106	2121	546	0-132	18	18
157.60	20°53.3'	112°31.8'	I-25	1826	1840	525	0-142	19	19
157.70	20°32.8'	113°06.7'	I-25	1356	1411	639	0-117	9	9
157.80	20°11'	113°38.5'	I-25	0924	0936	522	0-135	21	21
			Plankton Volumes, Cruise 5902, February 1959						
73.51	35°36'	121°20.5'	II-10	1651	1706	386	0-140	192	192
73.53	35°39'	121°26.5'	II-10	1511	1526	476	0-139	50	50
73.55	35°35'	121°33.5'	II-10	1341	1355	452	0-142	80	80
73.57	35°31'	121°40'	II-10	1151	1205	425	0-136	122	71
73.60	35°24'	121°52.5'	II-10	0941	0956	454	0-140	123	86
73.70	34°56.5'	122°39'	II-10	0406	0420	455	0-143	79	79
77.50	35°04.5'	120°52'	II-10	2207	2222	427	0-109	211	211
77.53	34°58'	121°04.5'	II-11	0151	0206	455	0-143	84	84

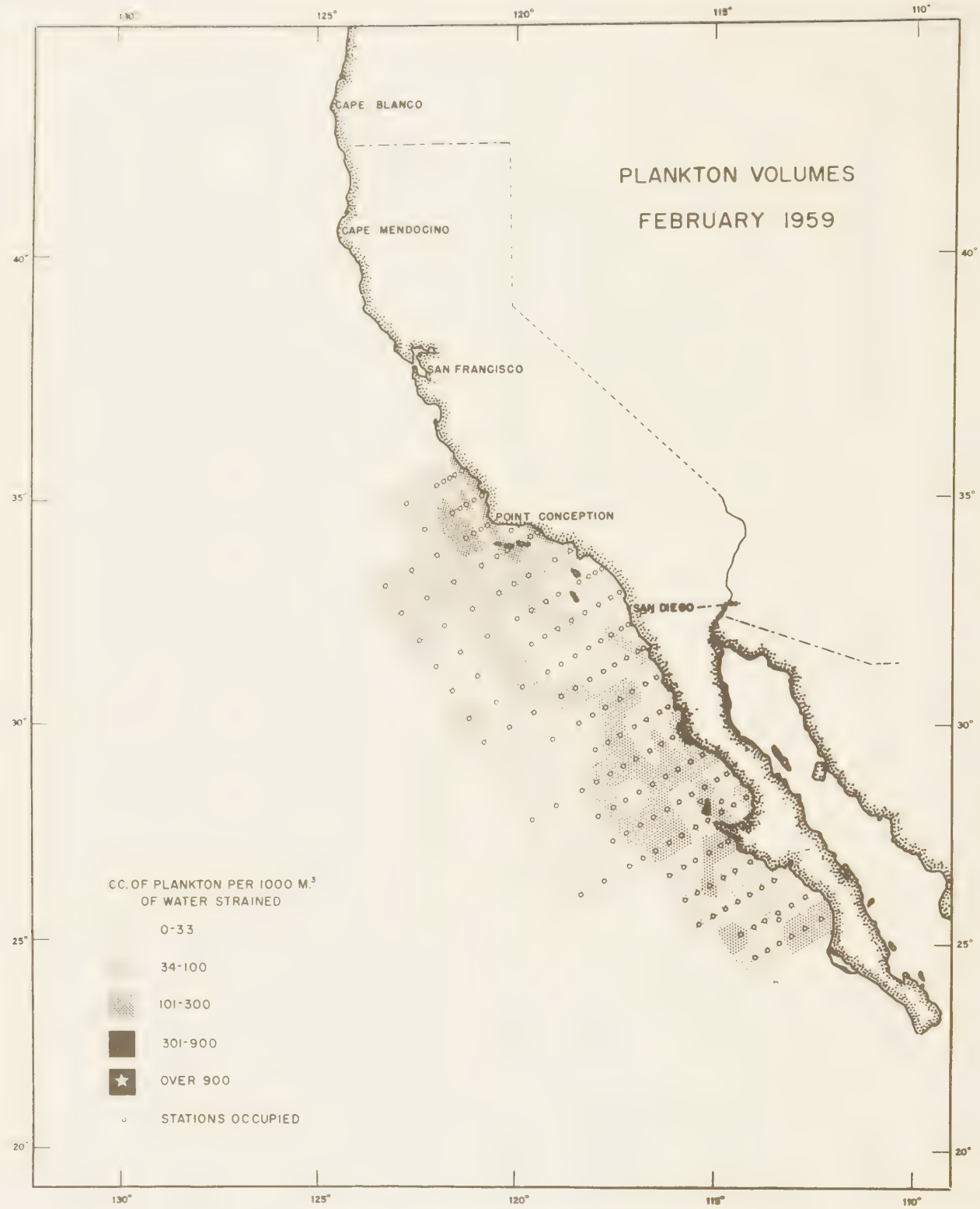

Figure 5.--Plankton volumes, February 1959.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m³ strained: Total	Vol. per 1,000 m³ strained: Small organism
						m^3	m.	cc.	cc.
77.55	34°54'	123°13'	II-11	0406	0421	(449)	0-143	(109)	(109)
77.57	35°54'	121°23'	II-12	1241	1255	467	0-140	58	39
77.60	34°45'	121°36'	II-12	1526	1541	430	0-144	149	149
77.70	34°25.5'	122°16.5'	II-12	2046	2100	497	0-123	77	77
80.52			No sample.						
80.53	34°23'	120°40'	II-14	0606	0620	451	0-140	111	111
80.55	34°16.5'	120°49.5'	II-14	0431	0446	443	0-138	18	18
80.57	34°13'	120°56'	II-14	0236	0250	434	0-139	166	166
80.60	34°08'	121°08.5'	II-14	0026	0040	454	0-135	136	136
80.70	33°49'	121°45'	II-13	1806	1821	455	0-139	90	90
80.80	33°31.5'	122°29'	II-13	1321	1335	450	0-140	56	56
80.90	33°10.5'	123°17.5'	II-13	0701	0715	451	0-140	42	42
82.47	34°14.5'	119°59.5'	II-14	1156	1210	494	0-139	30	30
83.40	34°14'	119°22'	II-14	1704	1706	59	0-14	102	102
83.43	34°08'	119°33.5'	II-14	1517	1529	406	0-126	71	71
83.51	33°52'	120°07.5'	II-14	2246	2301	483	0-137	116	116
83.55	33°44'	120°24.5'	II-15	0146	0200	456	0-144	97	97
83.60	33°34'	120°45'	II-15	0756	0811	435	0-121	55	55
83.70	33°13'	121°30'	II-15	1511	1526	421	0-141	66	66
83.70	33°13.6'	121°30.5'	II-18	0946	1001	506	0-122	40	40
83.80	32°50'	122°10'	II-18	0411	0426	474	0-138	46	46
83.90	32°32'	122°48.5'	II-17	2316	2330	505	0-130	57	57
87.35	33°30'	118°37.5'	II-19	0308	0314	200	0-57	50	50
87.40	33°39'	118°58.5'	II-19	0001	0016	446	0-141	54	54
87.50	33°20'	119°39.5'	II-16	1828	1836	191	0-69	47	47
87.55	33°10'	120°02'	II-16	2131	2146	502	0-126	60	60
87.60	33°01'	120°24'	II-17	0106	0120	456	0-141	79	79
87.70	32°43'	121°07.5'	II-17	0606	0621	471	0-141	91	91
87.80	32°29.5'	121°41'	II-17	1141	1155	468	0-135	28	28
87.90	32°04.5'	122°18'	II-17	1736	1751	473	0-140	57	57
90.27	33°28.3'	117°47'	II-28	0106	0121	432	0-141	28	28
90.30	33°23.5'	117°55'	II-27	2306	2320	471	0-126	25	25
90.32	33°19.6'	118°04'	II-27	2056	2110	404	0-131	17	17
90.37	33°10.5'	118°23.7'	II-27	1756	1810	504	0-140	4	4
90.45	32°53.7'	118°56.7'	II-27	1336	1350	469	0-144	23	23
90.50	32°47.5'	119°18.2'	II-27	0728	0735	247	0-71	53	53
90.55	32°35.8'	119°38.7'	II-27	0306	0321	470	0-142	38	38
90.60	32°22.5'	119°58'	II-27	0011	0025	468	0-142	30	30
90.70	32°00'	120°36'	II-26	1901	1915	496	0-141	50	50

Plankton volumes, Cruise 5902, February 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
90.80	31°44'	121°18'	II-26	1336	1350	480	0-141	10	10
90.90	31°25'	121°58.5'	II-26	0816	0831	582	0-132	5	5
93.28	32°54.7'	117°22.5'	II-24	1226	1241	505	0-141	4	4
93.30	32°49.5'	117°32'	II-24	1506	1520	486	0-142	1	1
93.35	32°39.5'	117°52.5'	II-24	1826	1840	515	0-140	25	25
93.40	32°31.5'	118°12.3'	II-24	2146	2200	565	0-132	19	19
93.45	32°21'	118°34'	II-25	0026	0040	475	0-142	59	59
93.50	32°12'	118°54'	II-25	0341	0355	497	0-140	48	48
93.55	32°02'	119°15'	II-25	0641	0650	474	0-139	23	23
93.60	31°57.5'	119°35'	II-25	1006	1021	546	0-127	7	7
93.70			Sample spoiled.						
93.80	31°07'	120°56'	II-25	2116	2131	515	0-138	21	21
93.90	30°47'	121°36'	II-26	0216	0231	478	0-143	23	23
97.30	32°15.7'	117°09'	II-14	0339	0343	169	0-32	6	6
97.32	32°13.1'	117°14.9'	II-14	0236	0250	521	0-141	13	13
97.35	32°08'	117°28.7'	II-14	0036	0050	551	0-138	38	38
97.40	31°56.9'	117°50.2'	II-13	2126	2140	534	0-140	26	26
97.45	31°47.5'	118°09.3'	II-13	1836	1850	559	0-135	18	18
97.50	31°36.6'	118°31'	II-13	1536	1550	532	0-141	8	8
97.55	31°24.5'	118°50'	II-13	1256	1310	545	0-137	4	4
97.60	31°11'	119°10.2'	II-13	0956	1010	550	0-137	2	2
97.70	30°52.3'	119°50.5'	II-13	0356	0410	537	0-142	41	41
97.80	30°36.2'	121°32'	II-12	2236	2250	592	0-137	27	27
97.90	30°16.6'	121°15.5'	II-12	1646	1700	551	0-142	36	36
100.29	31°42.2'	116°43.6'	II-10	1826	1840	546	0-127	22	22
100.30	31°40.7'	116°46.7'	II-10	1926	1940	599	0-137	37	37
100.35	31°31.7'	117°07.5'	II-10	2226	2240	608	0-137	15	15
100.40	31°22.8'	117°27.9'	II-11	0116	0131	619	0-132	27	27
100.45	31°13.5'	117°48.8'	II-11	0416	0431	496	0-131	22	22
100.50	31°03.3'	118°09.3'	II-11	0706	0721	563	0-141	20	20
100.55	30°58'	118°22.3'	II-11	1056	1110	570	0-131	37	37
100.60	30°50'	118°38.9'	II-11	1526	1540	430	0-156	37	37
100.70	30°24.3'	119°27.3'	II-11&12	2356	0010	567	0-141	21	21
100.80	30°04.5'	120°03.4'	II-12	0526	0540	541	0-142	24	24
100.90	29°44'	120°40'	II-12	1026	1040	576	0-138	9	9
103.30	31°05.7'	116°25.4'	II-10	1158	1205	243	0-70	4	4
103.35	30°55.3'	116°45.2'	II-10	0916	0930	550	0-127	4	4
103.40	30°46.1'	117°02.5'	II-10	0636	0650	552	0-143	34	34
103.45	30°36'	117°24.4'	II-10	0356	0411	552	0-146	54	54

Plankton volumes, Cruise 5902, February 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
103.50	30°26.5'	117°44.5'	II-10	0056	0110	603	0-136	50	50
103.55	30°16.1'	118°04.8'	II-9	2216	2231	546	0-139	26	26
103.60	30°07.2'	118°26'	II-9	1916	1930	562	0-142	32	32
103.70	29°55.9'	119°11.1'	II-9	1316	1330	603	0-139	17	17
107.32	30°25.8'	116°11.7'	II-7	1246	1300	456	0-134	11	11
107.35	30°19.5'	116°23'	II-7	1446	1501	637	0-129	9	9
107.40	30°08.9'	116°42'	II-7	1736	1751	595	0-141	30	30
107.45	29°58.5'	117°00.9'	II-7	2026	2041	579	0-140	22	22
107.50	29°48'	117°19.5'	II-7	2316	2331	600	0-137	77	77
107.55	29°38'	117°38.3'	II-8	0156	0211	661	0-125	60	60
107.60	29°27.8'	117°59.3'	II-8	0546	0601	564	0-138	18	18
107.70			Sample lost.						
110.33	29°50.5'	115°52.2'	II-14	1248	1257	279	0-84	125	125
110.35	29°46.5'	116°00'	II-14	1121	1135	456	0-144	20	20
110.40	29°36.5'	116°19.5'	II-14	0831	0845	470	0-141	47	47
110.45	29°32.5'	116°39'	II-14	0606	0621	502	0-135	16	16
110.50	29°19.5'	116°59'	II-14	0341	0355	460	0-142	37	37
110.55	29°07'	117°20'	II-14	0111	0125	478	0-142	50	38
110.60	28°56.5'	117°39'	II-13	2226	2241	456	0-143	61	61
110.65	28°46.5'	117°59'	II-13	1911	1926	492	0-141	49	49
110.70	28°36.5'	118°18'	II-13	1546	1600	504	0-139	14	14
110.80	28°12'	118°59'	II-13	1011	1025	479	0-141	8	8
110.90	27°56.5'	119°36'	II-13	0446	0500	510	0-138	16	16
113.30	29°22.5'	115°17.5'	II-14	1732	1737	194	0-50	52	52
113.35	29°12'	115°39'	II-14	1956	2010	457	0-142	48	48
113.40	29°02'	115°58.5'	II-14	2231	2246	475	0-142	74	74
113.45	28°52'	116°18'	II-15	0116	0130	522	0-133	46	46
113.50	28°42'	116°37.5'	II-15	0526	0541	487	0-142	70	37
113.55	28°28'	117°03'	II-15	0750	0805	497	0-137	22	22
113.60	28°15'	117°29'	II-15	1106	1120	461	0-142	24	24
113.65	28°08'	117°43'	II-15	1241	1255	463	0-140	45	45
113.70	28°02'	117°55.5'	II-15	1426	1441	464	0-145	17	17
117.26	28°56'	114°41'	II-17	0118	0125	236	0-63	25	25
117.30	28°48'	114°56.5'	II-16	2317	2327	366	0-96	16	16
117.35	28°38'	115°16'	II-16	2051	2105	591	0-133	39	39
117.40	28°28'	115°35.5'	II-16	1016	1030	491	0-133	18	18
117.45	28°18'	115°55.2'	II-16	0736	0750	508	0-135	26	26
117.50	28°12.3'	116°06.3'	II-16	0526	0540	468	0-137	98	66
117.55	28°03'	116°21'	II-16	0312	0327	499	0-138	64	64

Plankton volumes, Cruise 5902, February 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
117.60	27°51'	116°45'	II-16	0036	0051	544	0-137	86	37
117.65	27°39'	117°08'	II-15	2151	2205	498	0-140	36	36
117.70	27°27.5'	117°32.5'	II-15	1916	1931	500	0-140	24	24
118.39	28°18.5'	115°24'	II-16	1210	1225	460	0-143	41	41
119.33	28°19'	114°53'	II-17	1046	1057	382	0-96	10	10
120.25	28°23'	114°14.5'	II-17	0619	0624	184	0-49	54	54
120.30	28°13'	114°34'	II-17	0822	0830	302	0-82	20	20
120.35	28°03'	114°54'	II-17	1253	1301	282	0-58	39	39
120.40	27°56.5'	114°13.7'	II-17	1459	1503	142	0-34	21	21
120.45	27°43'	115°33'	II-17	1721	1736	513	0-136	31	31
120.50	27°33'	115°52.5'	II-17	2021	2036	473	0-136	40	40
120.55	27°23'	116°12'	II-17	2256	2310	521	0-124	50	50
120.60	27°14'	116°31.5'	II-18	0121	0135	464	0-142	35	35
120.65	27°04.5'	116°51'	II-18	0356	0411	480	0-139	23	23
120.70	26°55'	117°10.5'	II-18	0626	0640	475	0-139	29	29
120.80	26°32.5'	117°48.5'	II-18	1131	1146	474	0-137	19	19
120.90	26°13'	118°27.5'	II-18	1611	1626	513	0-138	21	21
123.37	27°34'	114°39.7'	II-19	2118	2125	255	0-61	43	43
123.42	27°17.2'	115°00.3'	II-19	1846	1901	465	0-140	65	65
123.42B	27°14'	114°59.2'	II-24	2326	2340	487	0-138	57	57
123.45	27°08'	115°11'	II-19	1641	1656	446	0-144	34	34
123.50	26°58'	115°30.5'	II-19	1341	1356	466	0-138	26	26
123.55	26°48.2'	115°49.7'	II-19	1011	1025	456	0-142	18	18
123.60	26°38.5'	116°09'	II-19	0651	0705	426	0-148	21	21
127.34	26°55.3'	114°06'	II-20	1323	1330	226	0-65	18	18
127.40	26°43.5'	114°29.5'	II-20	1616	1631	478	0-140	29	29
127.45	26°33.5'	114°48.7'	II-20	1906	1921	470	0-138	23	23
127.50	26°23.5'	115°08'	II-20	2215	2231	516	0-141	35	35
127.55	26°13'	115°28'	II-21	0056	0111	469	0-141	26	26
127.60	26°02'	115°49'	II-21	0336	0351	475	0-141	17	17
130.30	26°29'	113°29'	II-22	0053	0100	259	0-57	31	31
130.35	26°19'	113°48.5'	II-21	2216	2230	478	0-138	25	25
130.40	26°09'	114°07.5'	II-21	1956	2011	466	0-139	30	30
130.45	25°59'	114°26'	II-21	1646	1700	488	0-139	16	16
130.50	25°49'	114°46'	II-21	1406	1421	465	0-142	4	4
130.55	25°36.5'	115°05'	II-21	1116	1130	458	0-138	13	13
130.60	25°22'	115°27'	II-21	0831	0846	501	0-138	6	6
133.25	26°04.5'	112°48'	II-22	0548	0555	279	0-80	25	25
133.30	25°54.5'	113°07.5'	II-22	0826	0840	485	0-130	33	33

Plankton volumes, Cruise 5902, February 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
133.35	25°44.3'	113°26.5'	II-22	2146	2200	498	0-129	22	12
133.40	25°34.5'	113°45.5'	II-23	0056	0110	497	0-131	16	16
133.45	25°27'	114°04.2'	II-23	0336	0350	482	0-142	12	12
133.50	25°19.2'	114°25.2'	II-23	0631	0645	465	0-144	54	54
134.36	25°36.2'	113°22.8'	II-22	1936	1951	429	0-136	12	12
137.23	25°39'	112°21.8'	II-24	0208	0215	231	0-64	56	56
137.30	25°23.7'	112°46.8'	II-23	2241	2256	497	0-133	36	36
137.35	25°12.2'	113°05.8'	II-23	2011	2026	474	0-138	97	97
137.40	25°01.2'	113°24.3'	II-23	1651	1705	446	0-139	4	4
137.45	24°50.5'	113°41.8'	II-23	1416	1430	480	0-141	29	29
137.50	24°40'	114°01.5'	II-23	1136	1150	446	0-138	7	7
			Plankton Volumes, Cruise 5903, March 1959						
83.40	34°14'	119°22'	III-25	1620	1622	117	0-10	51	51
83.43	34°08.2'	119°33.8'	III-25	1756	1810	513	0-140	129	129
83.51			Net and meter lost.						
87.35	33°49.8'	118°37.5'	III-24	0836	0850	498	0-147	14	14
87.40	33°40'	118°58.5'	III-27	0941	0956	491	0-146	8	8
87.45	33°34.3'	119°26.4'	III-27	1246	1301	530	0-140	34	34
87.50	33°23'	119°38.1'	III-27	1837	1848	460	0-77	26	26
90.28	33°28'	117°47'	III-11	2131	2146	573	0-139	23	23
90.30	33°24.5'	117°55.5'	III-11	2231	2245	504	0-148	16	16
90.37	33°10.5'	118°23.5'	III-12	0311	0326	581	0-126	21	21
90.45	32°55.5'	118°56.5'	III-12	0711	0726	518	0-141	48	48
90.50	32°46.5'	119°18.5'	III-12	1006	1020	513	0-139	66	66
90.55	32°37'	119°39.5'	III-12	1311	1326	584	0-124	19	19
90.60	32°25'	119°58'	III-12	1606	1621	505	0-139	30	30
90.65	32°15'	120°16'	III-12	1841	1856	542	0-122	24	24
90.70	32°05'	120°38'	III-12	2201	2215	513	0-140	45	45
90.80	31°44.5'	121°18'	III-13	0306	0321	532	0-138	38	38
90.90	31°24'	121°58.5'	III-13	0841	0859	624	0-140	19	19
93.28	32°55'	117°22'	III-15	1246	1301	527	0-140	8	8
93.30	32°46'	117°29.5'	III-15	1011	1026	537	0-138	6	6
93.35	32°38'	117°51'	III-15	0731	0745	491	0-137	6	6
93.40	32°30'	118°12.5'	III-15	0311	0326	504	0-138	34	34
93.45	32°20'	118°33.5'	III-14	2231	2245	503	0-146	32	32
93.50	32°04.5'	118°51'	III-14	1731	1746	478	0-140	36	36

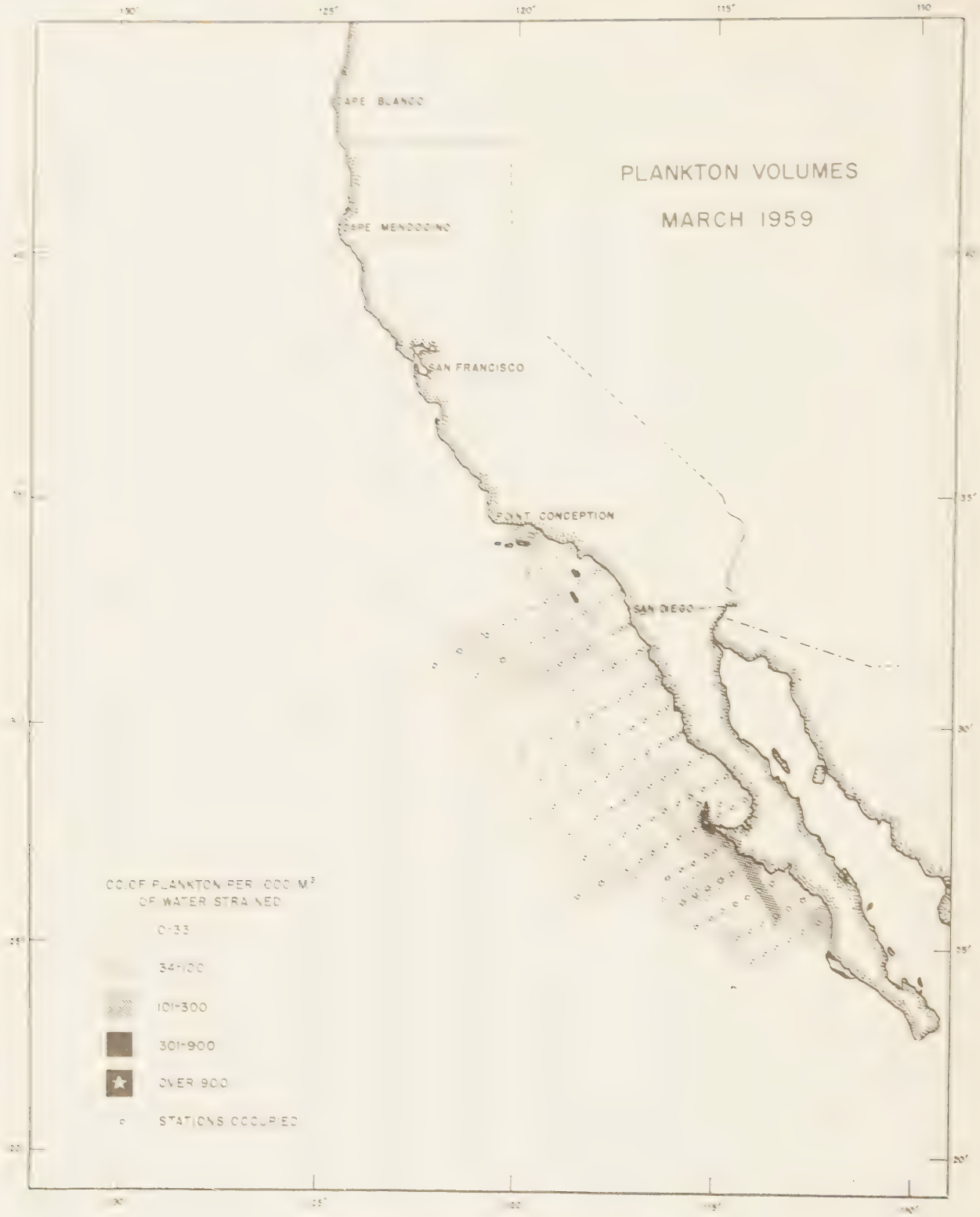

Figure 6.--Plankton volumes, March 1959.

Plankton volumes, Cruise 5903, March 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
93.55	31°55'	119°12'	III-14	1326	1341	444	0-150	27	27
93.60	31°45.5'	119°33'	III-14	0941	0956	474	0-147	21	21
93.70	31°27'	120°13.5'	III-14	0356	0410	550	0-128	36	36
93.80	31°08.5'	120°54.5'	III-13	2006	2020	532	0-140	21	21
93.90	30°50'	121°35'	III-13	1326	1341	569	0-131	14	14
97.30	32°16'	117°08.8'	III-22	1124	1130	186	0-50	32	32
97.32	32°11.8'	117°16.2'	III-22	0956	1011	539	0-141	11	11
97.35	32°03'	117°27'	III-22	0736	0750	546	0-136	13	13
97.40	31°53'	117°48.2'	III-22	0436	0450	530	0-139	30	30
97.45	31°43.2'	118°08.3'	III-22	0201	0216	519	0-143	58	58
97.50	31°33.8'	118°29'	III-21	2306	2321	526	0-144	72	44
97.55	31°23.3'	118°49'	III-21	2011	2026	471	0-145	36	36
97.60	31°14.4'	119°08.2'	III-21	1731	1745	521	0-138	35	35
100.29	31°42.1'	116°43.5'	III-20	1727	1736	373	0-80	13	13
100.30	31°40.6'	116°46.6'	III-20	1846	1901	534	0-139	15	15
100.35	31°30.2'	117°08'	III-20	2136	2151	548	0-131	26	26
100.40	31°19.7'	117°29.5'	III-21	0051	0106	538	0-140	39	39
100.45	31°08'	117°50.5'	III-21	0401	0416	556	0-137	85	32
100.50	30°58'	118°12.8'	III-21	0636	0651	536	0-137	13	13
100.55	30°51'	118°29.8'	III-21	0906	0920	574	0-136	14	14
100.60	30°44.9'	118°45.9'	III-21	1216	1230	547	0-128	16	16
103.30	31°04.2'	116°23.6'	III-20	1059	1104	192	0-48	42	42
103.35	30°52.4'	116°43.3'	III-20	0746	0801	496	0-145	12	12
103.40	30°43.6'	117°04.8'	III-20	0447	0500	555	0-138	14	14
103.45	30°39'	117°23.7'	III-19	1436	1450	562	0-129	14	14
103.50	30°33.5'	117°42.3'	III-19	1226	1241	538	0-137	7	7
103.55	30°26.5'	118°01.9'	III-19	0926	0940	554	0-132	7	7
103.60	30°16.7'	118°28.4'	III-19	0636	0650	507	0-142	12	12
103.70	29°52.7'	119°05'	III-19	0031	0045	544	0-134	33	33
103.80	29°28.1'	119°44.8'	III-18	1911	1926	505	0-145	14	14
107.32	30°25.5'	116°10.8'	III-17	0836	0851	514	0-140	8	8
107.35	30°19.5'	116°21.2'	III-17	1046	1100	542	0-139	17	17
107.40	30°09.2'	116°45.2'	III-17	1336	1350	533	0-137	13	13
107.45	29°59.6'	117°02.6'	III-17	1635	1650	582	0-138	14	14
107.50	29°50.4'	117°21.3'	III-17	1931	1945	536	0-138	28	28
107.55	29°41.5'	117°42.4'	III-17	2226	2240	523	0-141	31	31
107.60	29°32'	118°01.1'	III-18	0156	0210	533	0-134	81	81
107.70	29°12'	118°40.5'	III-18	0706	0720	562	0-135	14	14
107.80	28°52.3'	119°23.7'	III-18	1226	1241	501	0-143	14	14

Plankton volumes, Cruise 5903, March 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 $m.^3$ strained: Total	Vol. per 1,000 $m.^3$ strained: Small organism
						$m.^3$	m.	cc.	cc.
110.33	29°50.5'	115°52.2'	III-14	0843	0852	338	0-85	3	3
110.35	29°46.5'	116°00'	III-14	0716	0730	483	0-142	1	1
110.40	29°35.5'	116°18.4'	III-14	0321	0336	440	0-149	18	18
110.45	29°25.4'	116°39'	III-14	0026	0041	495	0-144	32	32
110.50	29°15.4'	116°59'	III-13	2131	2146	519	0-142	29	29
110.55	29°03.6'	117°19.2'	III-13	1830	1845	504	0-140	16	16
110.60	28°55.5'	117°38'	III-13	1545	1600	517	0-140	4	4
110.65	28°46.2'	117°56.5'	III-13	1220	1235	507	0-144	6	6
110.70	28°36'	118°18'	III-13	0921	0936	523	0-142	6	6
110.80	28°17.8'	118°55'	III-13	0445	0501	546	0-140	22	22
110.90	27°59'	119°33'	III-12&13	2351	0006	490	0-147	8	8
113.30	29°22.5'	115°18'	III-14	1329	1333	138	0-36	22	22
113.35	29°12.4'	115°37.8'	III-14	1620	1634	507	0-137	22	22
113.40	29°02.3'	115°57.5'	III-14	1910	1925	481	0-142	58	58
113.45	28°52.3'	116°17'	III-14	2200	2215	499	0-140	90	90
113.50	28°42.6'	116°36.4'	III-15	0041	0056	464	0-149	58	58
113.55	28°33'	116°56'	III-15	0326	0341	466	0-147	82	64
113.60	28°23.5'	117°14.5'	III-15	0716	0730	502	0-138	12	12
113.65	28°12.5'	117°35'	III-15	1011	1026	484	0-142	4	4
113.70	28°02'	117°54.5'	III-15	1256	1310	451	0-148	1	1
113.80	27°42.5'	118°38.5'	III-15	1811	1826	481	0-141	12	12
117.26	28°56'	114°40.7'	III-17	0845	0852	240	0-62	50	50
117.30	28°48'	114°56.5'	III-17	0640	0652	324	0-92	31	31
117.35	28°38'	115°16'	III-17	0400	0414	519	0-139	8	8
117.40	28°28'	115°35.5'	III-16	2236	2251	467	0-142	86	86
117.45	28°18'	115°55'	III-16	1936	1951	506	0-141	28	28
117.50	28°08.5'	116°15.3'	III-16	1651	1705	490	0-140	39	39
117.55	27°57.5'	116°34'	III-16	1306	1320	480	0-138	4	4
117.60	27°47.7'	116°53.5'	III-16	1026	1040	497	0-142	6	6
117.65	27°42.5'	117°22.5'	III-16	0700	0714	507	0-141	16	16
117.70	27°31.5'	117°39.5'	III-16	0415	0430	503	0-141	28	28
117.80	27°08.4'	118°12.5'	III-15	2315	2330	498	0-140	16	16
118.39	28°19'	115°24.5'	III-17	0041	0056	471	0-142	40	40
119.33	28°19'	114°53.2'	III-17	1808	1816	300	0-83	23	23
120.25	28°23'	114°15'	III-17	1334	1338	164	0-41	43	43
120.30	28°13.2'	114°34'	III-17	1603	1610	257	0-70	8	8
120.35	28°03'	114°54'	III-17	2018	2026	215	0-70	14	14
120.40	27°56.5'	115°14'	III-17	2238	2242	117	0-28	375	375
120.45	27°43'	115°33'	III-18	0121	0136	493	0-143	37	37

Plankton volumes, Cruise 5903, March 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
120.50	27°32'	115°52'	III-18	0515	0529	505	0-141	44	44
120.55	27°21.5'	116°11.5'	III-18	0800	0815	463	0-145	26	26
120.60	27°11'	116°30.6'	III-18	1100	1114	494	0-141	34	34
120.65	27°00'	116°51'	III-18	1306	1320	498	0-141	20	20
120.70	26°49'	117°10'	III-18	1536	1550	497	0-140	42	42
120.80	26°33.4'	117°47.5'	III-18	2051	2106	468	0-141	64	64
120.90	26°13'	118°27.5'	III-19	0206	0221	464	0-142	32	17
123.37	27°24'	114°40'	III-20	0758	0804	208	0-56	134	134
123.42	27°14.2'	115°00'	III-20	0530	0544	480	0-142	96	96
123.45	27°08.6'	115°10.7'	III-20	0250	0304	415	0-152	39	39
123.50	26°58.3'	115°30'	III-20	0000	0014	446	0-145	27	27
123.55	26°48.5'	115°50.5'	III-19	2106	2121	476	0-142	19	19
123.60	26°36'	116°09'	III-19	1751	1806	501	0-141	14	14
127.34	26°55.3'	114°06'	III-20	1238	1245	238	0-64	298	298
127.40	26°43'	114°29'	III-20	1551	1606	466	0-140	86	86
127.45	26°32.2'	114°48.7'	III-20	1836	1851	478	0-140	71	71
127.50	26°22.8'	115°08'	III-20	2111	2126	468	0-141	34	34
127.55	26°13'	115°27.5'	III-21	0006	0020	457	0-143	53	53
127.60	26°03.5'	115°47'	III-21	0300	0315	461	0-141	39	39
130.30	26°29'	113°28.7'	III-22	0048	0055	219	0-63	82	82
130.35	26°18.6'	113°48.5'	III-21	2201	2216	474	0-140	268	268
130.40	26°07.5'	114°06.8'	III-21	1956	2010	489	0-139	27	27
130.45	25°57.5'	114°26'	III-21	1626	1641	501	0-140	16	16
130.50	25°48'	114°45'	III-21	1356	1400	460	0-140	20	20
130.55	25°39'	115°02.5'	III-21	1115	1130	472	0-142	21	21
130.60	25°26.8'	115°22.8'	III-21	0815	0830	483	0-139	19	19
133.25	26°03.2'	112°45.5'	III-22	0608	0616	252	0-70	60	60
133.30	25°55'	113°07.6'	III-22	0920	0934	472	0-141	53	53
133.35	25°44.4'	113°26.5'	III-22	1645	1700	491	0-137	118	118
133.40	26°34.6'	113°45.2'	III-22	1945	1959	471	0-139	32	32
133.45	25°24.6'	114°04.5'	III-22	2216	2230	474	0-140	27	27
133.50	25°14.5'	114°23.8'	III-23	0106	0120	460	0-143	35	35
134.36	25°35.7'	113°25.2'	III-22	1516	1530	406	0-120	93	93
137.23	25°33.7'	112°18.5'	III-23	2220	2226	205	0-56	204	204
137.30	25°19.5'	112°46'	III-23	1815	1829	472	0-139	85	85
137.35	25°09'	113°05.3'	III-23	1526	1540	480	0-141	19	19
137.40	24°58'	113°25.2'	III-23	1156	1210	497	0-144	10	10
137.45	24°49'	113°43.2'	III-23	0821	0836	471	0-140	15	15
137.50	24°40.3'	114°00'	III-23	0606	0620	484	0-142	19	19

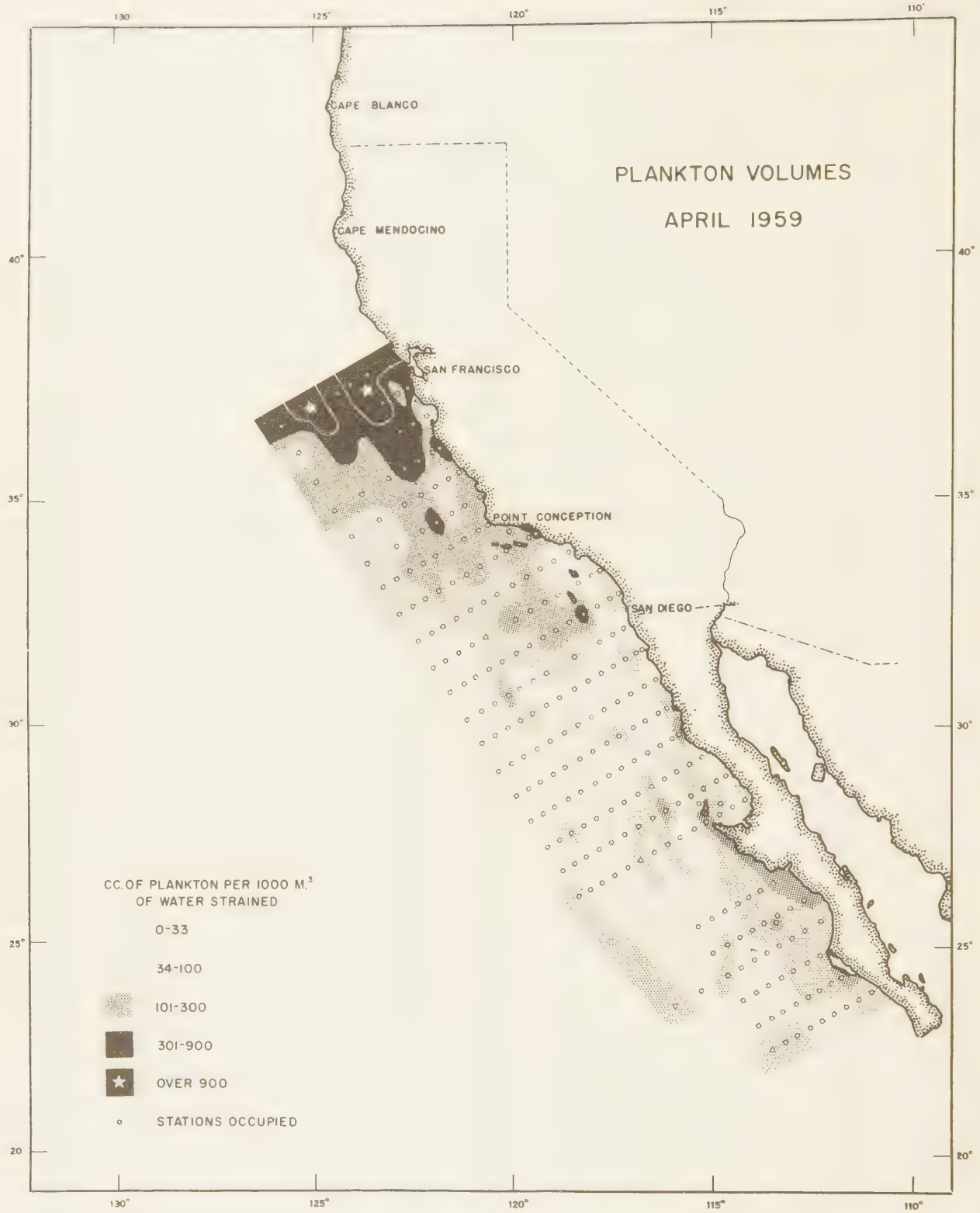

Figure 7.--Plankton volumes, April 1959.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
60.60	37°37'	123°37'	IV-24	0641	0655	460	0-136	1138	1081
60.65	37°25'	123°57.5'	IV-24	0906	0920	410	0-138	6067	5295
60.70	37°14'	124°16'	IV-24	1216	1230	490	0-134	532	532
60.80	36°54'	125°02.5'	IV-24	1711	1726	490	0-133	1172	1011
60.90	36°37'	125°47'	IV-24	2211	2226	418	0-139	332	332
63.52	37°19'	122°36.5'	IV-24	0043	0050	216	0-60	910	325
63.55	37°13'	122°49'	IV-23	2326	2341	457	0-135	339	269
63.60	37°03.5'	123°10'	IV-23	2111	2126	412	0-137	1492	1344
63.90	36°02'	125°21'	IV-25	0301	0316	494	0-140	89	89
67.50	36°49'	122°05'	IV-23	1012	1022	399	0-95	95	95
67.55	36°41'	122°27.5'	IV-23	1236	1250	506	0-128	352	352
67.60	36°29'	122°45.5'	IV-23	1606	1620	(485)	0-133	(439)	(369)
67.90	35°29'	124°56'	IV-25	0751	0806	465	0-140	110	110
70.52	36°07.5'	121°50'	IV-23	0456	0510	487	0-133	320	320
70.55	36°03'	122°02'	IV-23	0251	0306	416	0-145	250	250
70.60	35°53'	122°22.5'	IV-23	0026	0041	462	0-139	494	494
70.65	35°43'	122°45'	IV-22	2126	2141	469	0-142	529	529
70.70	35°33'	123°06'	IV-22	1906	1920	531	0-121	109	109
70.80	35°13'	123°48.5'	IV-22	1411	1425	514	0-135	216	201
70.90	34°53'	124°30'	IV-22	0936	0951	512	0-134	115	115
73.51	35°32'	121°25.5'	IV-25	1006	1021	462	0-139	186	186
73.55	35°26.3'	121°37'	IV-25	1256	1310	487	0-137	68	68
73.60	35°15.5'	121°59'	IV-25	1646	1700	483	0-141	66	66
73.65	35°05.7'	122°19.5'	IV-25	1951	2006	489	0-140	268	268
73.70	34°57'	122°38'	IV-25	2336	2350	459	0-145	349	290
73.80	34°37'	123°19'	IV-26	0506	0520	480	0-140	111	77
73.90	34°17'	124°00'	IV-26	1046	1101	484	0-142	50	50
77.50	35°02.5'	120°51'	IV-25	0507	0518	363	0-106	215	215
77.55	34°54.4'	121°10'	IV-25	0206	0220	464	0-142	119	119
77.60	34°43.5'	121°31'	IV-24	2321	2336	490	0-142	86	86
77.65	34°33'	121°53'	IV-24	1946	2000	492	0-140	317	317
77.70	34°22.5'	122°14'	IV-24	1706	1720	498	0-136	155	155
77.80	34°07'	122°53'	IV-24	1206	1220	467	0-143	69	69
77.90	33°43'	123°40'	IV-24	0506	0520	476	0-141	50	50
80.52	34°24.5'	120°36'	IV-22	1836	1850	504	0-130	185	185
80.55	34°18.7'	120°48.5'	IV-22	2211	2226	477	0-143	218	218
80.60	34°09.2'	121°09.5'	IV-23	0106	0120	455	0-144	101	101
80.65	33°59.5'	121°31'	IV-23	0516	0530	457	0-141	103	103
80.70	33°50'	121°53.5'	IV-23	0846	0901	470	0-141	149	149

Plankton volumes, Cruise 5904, April 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m³ strained: Total	Vol. per 1,000 m³ strained: Small organism
						m^3	m.	cc.	cc.
80.75	33°38.5'	121°11'	IV-23	1116	1130	473	0-137	104	104
80.80	33°29'	122°32'	IV-23	1506	1520	450	0-142	147	147
80.85	33°17.5'	122°52'	IV-23	1751	1805	475	0-140	74	74
80.90	33°09'	123°13'	IV-23	2116	2130	488	0-138	86	86
82.47	34°15.5'	119°57.5'	IV-22	1346	1400	444	0-144	135	135
83.40	34°13.7'	119°21.6'	IV-22	1010	1012	82	0-13	342	342
83.43	34°08'	119°34.6'	IV-22	0751	0806	461	0-138	278	278
83.51	33°51.7'	120°07.5'	IV-22	0217	0228	380	0-112	116	116
83.55	33°44'	120°24.5'	IV-21	2301	2321	510	0-138	80	80
83.60	33°31'	120°43'	IV-21	1906	1920	490	0-140	118	118
83.65	33°23.5'	121°05.5'	IV-21	1526	1540	364	0-138	134	134
83.70	33°16.2'	121°25.5'	IV-21	1256	1310	498	0-137	74	74
83.75	33°05.5'	121°48.7'	IV-21	0921	0936	494	0-137	156	156
83.80	32°55.2'	122°09'	IV-21	0626	0640	474	0-140	44	44
83.85	32°45'	122°28'	IV-21	0216	0230	476	0-141	40	40
83.90	32°34.2'	122°48'	IV-20	2326	2340	462	0-146	56	56
87.35	33°50'	118°37.6'	IV-19	0146	0200	476	0-143	19	19
87.40	33°40'	118°58.5'	IV-19	0516	0530	471	0-141	30	30
87.45	33°30'	119°19'	IV-19	0851	0906	497	0-139	99	99
87.50	33°20'	119°39.5'	IV-19	1129	1134	190	0-49	106	106
87.55	33°10'	120°00.5'	IV-19	1506	1520	462	0-144	43	43
87.60	32°59.2'	120°22.5'	IV-19	1936	1951	468	0-142	64	64
87.65	32°47.7'	120°47.5'	IV-19&20	2356	0010	473	0-143	163	97
87.70	32°36'	121°10.5'	IV-20	0506	0521	472	0-142	91	91
87.75	32°26'	121°32'	IV-20	0816	0831	481	0-139	52	52
87.80	32°18.2'	121°47.4'	IV-20	1111	1126	481	0-142	52	52
87.85	32°10.2'	122°04'	IV-20	1326	1341	480	0-143	21	21
87.90	32°00.8'	122°26.8'	IV-20	1706	1720	494	0-141	26	26
90.28	33°28.5'	117°47'	IV-17	1306	1317	342	0-92	64	64
90.32	33°20.5'	118°03.3'	IV-17	1001	1016	481	0-140	29	29
90.37	33°10.5'	118°23.5'	IV-16	0736	0750	503	0-136	4	4
90.45	32°55'	118°56.4'	IV-16	0306	0320	464	0-144	69	69
90.50	32°44.7'	119°16.6'	IV-15	2207	2217	329	0-92	119	119
90.55	32°35.5'	119°35.4'	IV-15	1926	1940	511	0-133	125	125
90.60	32°24.6'	119°57.6'	IV-15	1546	1600	482	0-138	104	104
90.65			Sample lost.						
90.70	32°01'	120°38'	IV-15	0736	0750	484	0-140	41	41
90.75	31°52'	120°58'	IV-15	0356	0411	496	0-139	18	18
90.80	31°43'	121°18.3'	IV-15	0006	0020	495	0-142	20	20

Plankton volumes, Cruise 5904, April 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
90.85	31°34.2'	121°39'	IV-14	2106	2120	499	0-144	8	8
90.90	31°23'	122°03.7'	IV-14	1556	1610	497	0-140	8	8
93.28	32°54.6'	117°22.2'	IV-12	1751	1806	515	0-138	45	45
93.30	32°50'	117°31.6'	IV-12	2006	2020	485	0-140	36	36
93.35	32°40'	117°52.5'	IV-12	2246	2300	466	0-141	24	24
93.40	32°29.6'	118°13.3'	IV-13	0216	0230	505	0-139	311	311
93.45	32°20'	118°32.5'	IV-13	0506	0520	489	0-142	143	143
93.50	32°10'	118°52.2'	IV-13	0816	0830	489	0-142	145	145
93.55	32°00'	119°13'	IV-13	1106	1120	495	0-140	137	137
93.60	31°50.2'	119°33'	IV-13	1446	1500	478	0-146	100	100
93.65	31°40.7'	119°53.7'	IV-13	1726	1740	497	0-138	72	72
93.70	31°30'	120°13.5'	IV-13	2106	2120	499	0-141	44	44
93.75	31°21.5'	120°34'	IV-13&14	2356	0011	489	0-141	86	86
93.80	31°11.5'	120°54.2'	IV-14	0346	0400	490	0-140	29	29
93.85	31°01.3'	121°14.7'	IV-14	0636	0650	490	0-141	48	1
93.90	30°52'	121°34.8'	IV-14	0946	1000	488	0-142	4	4
97.30			Occupied. Sample not quantitative.						
97.32	32°11'	117°16.2'	IV-11	1026	1040	499	0-141	8	8
97.35	32°04'	117°29.2'	IV-11	0741	0756	484	0-140	1	1
97.40	31°56.5'	117°44'	IV-11	0526	0541	486	0-141	14	14
97.45			Occupied. Sample not quantitative.						
97.50	31°35.6'	118°27.7'	IV-10	2306	2320	487	0-143	58	58
97.55			Sample lost.						
97.60	31°16'	119°09.5'	IV-10	1601	1615	504	0-140	68	68
97.65	31°05'	119°31'	IV-10	1216	1230	495	0-143	20	20
97.70	30°55.6'	119°54.7'	IV-10	0816	0820	498	0-140	22	22
97.75	30°45.6'	120°14.7'	IV-10	0426	0440	518	0-140	372	167
97.80	30°36'	120°32.5'	IV-10	0126	0140	511	0-142	20	20
97.85	30°26'	120°51'	IV-9	2156	2211	499	0-143	30	30
97.90	30°16.5'	121°09.5'	IV-9	1906	1920	509	0-141	20	20
100.29	31°42.2'	116°43.4'	IV-7	2138	2146	269	0-72	15	15
100.30	31°40.5'	116°46.5'	IV-7	2316	2330	488	0-145	35	35
100.35	31°30.7'	117°06.7'	IV-8	0206	0220	513	0-138	39	39
100.40	31°21'	117°27'	IV-8	0536	0550	506	0-140	28	28
100.45	31°10.5'	117°47.5'	IV-8	0826	0841	529	0-141	15	15
100.50	31°00'	118°07.5'	IV-8	1206	1220	504	0-138	10	10
100.55	30°51'	118°26.5'	IV-8	1451	1506	516	0-140	19	19
100.60	30°40.3'	118°47'	IV-8	1826	1840	493	0-141	28	28
100.65	30°30.8'	119°07'	IV-8	2116	2130	506	0-141	30	30

Plankton volumes, Cruise 5904, April 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
100.70	30°20.5'	119°27'	IV-9	0036	0051	505	0-144	42	42
100.75	30°10'	119°48'	IV-9	0341	0355	492	0-141	53	53
100.80	30°00'	120°09'	IV-9	0716	0730	513	0-140	29	29
100.85	29°49'	120°30'	IV-9	1006	1020	513	0-140	10	10
100.90	29°40'	120°48'	IV-9	1306	1320	500	0-142	16	16
103.30	31°04.6'	116°25.8'	IV-8	0313	0320	290	0-59	14	14
103.35	30°55.2'	116°45.2'	IV-8	0641	0656	498	0-138	10	10
103.40	30°45.2'	117°05.7'	IV-8	1021	1036	541	0-139	13	13
103.45	30°34.2'	117°21'	IV-8	1316	1330	556	0-134	13	13
103.50	30°25'	117°41.7'	IV-8	1656	1710	498	0-140	12	12
103.55	30°16'	118°02.3'	IV-8	1951	2005	486	0-141	16	16
103.60	30°07'	118°23.1'	IV-8	2316	2331	518	0-137	50	41
103.65	29°56.5'	118°43'	IV-9	0246	0301	493	0-140	14	14
103.70	29°46'	119°04'	IV-9	0621	0636	499	0-133	32	32
103.75	29°35'	119°24'	IV-9	0916	0930	496	0-142	6	6
103.80	29°24.7'	119°44'	IV-9	1226	1241	523	0-135	4	4
103.85	29°16.7'	120°03.3'	IV-9	1516	1530	554	0-127	4	4
103.90	29°06.8'	120°22.4'	IV-9	1835	1851	494	0-138	10	10
107.32	30°26.2'	116°09.7'	IV-11	1411	1426	454	0-144	37	37
107.35	30°18'	116°20.5'	IV-11	1221	1236	519	0-129	12	12
107.40	30°06.5'	116°39.1'	IV-11	0836	0850	527	0-127	23	23
107.45	30°00'	117°03.3'	IV-11	0451	0506	442	0-144	11	11
107.50	29°49.9'	117°23.5'	IV-11	0151	0206	495	0-127	42	42
107.55	29°41.2'	117°41.7'	IV-10	2226	2240	520	0-132	25	25
107.60	29°31.8'	118°01'	IV-10	1931	1946	500	0-138	34	24
107.65	29°22.3'	118°21'	IV-10	1531	1546	472	0-138	21	21
107.70	29°13.9'	118°42'	IV-10	1241	1256	480	0-140	17	17
107.75	29°02.7'	119°01.7'	IV-10	0941	0956	491	0-137	8	8
107.80	28°51.4'	119°19.1'	IV-10	0626	0641	488	0-138	8	8
107.85	28°41.8'	119°39'	IV-10	0301	0316	526	0-131	25	25
107.90	28°32.1'	119°58.7'	IV-10	0006	0021	476	0-135	27	27
110.33	29°49.7'	115°52'	IV-11	1953	2000	262	0-72	115	115
110.35	29°46'	116°00'	IV-11	2216	2231	551	0-129	29	29
110.40	29°36.9'	116°18.7'	IV-12	0206	0221	549	0-127	13	13
110.45	29°25.7'	116°42.8'	IV-12	0511	0526	517	0-133	15	15
110.50	29°17.2'	117°04.8'	IV-12	0856	0911	515	0-138	16	16
110.55	29°07.7'	117°20'	IV-12	1131	1146	439	0-129	14	14
110.60	28°56'	117°41'	IV-12	1451	1506	514	0-140	14	14
110.65	28°53.2'	118°04.3'	IV-12	1756	1810	509	0-144	10	10

Plankton volumes, Cruise 5904, April 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
110.70	28°36.5'	118°17'	IV-17	2101	2116	526	0-141	17	17
110.75	28°26.5'	118°37.5'	IV-18	0001	0016	530	0-143	15	15
110.80	28°12'	118°58.9'	IV-18	0346	0401	528	0-132	15	15
110.85	28°07'	119°19'	IV-18	0646	0700	481	0-136	12	12
110.90	27°56.5'	119°39.2'	IV-18	1026	1040	544	0-135	6	6
113.30	29°22.8'	115°17.6'	IV-20	0609	0614	202	0-48	15	15
113.35	29°11.1'	115°40.9'	IV-20	0256	0310	535	0-130	90	90
113.40	29°01.6'	115°59'	IV-19	2321	2336	561	0-132	61	61
113.45	28°51.9'	116°18.8'	IV-19	1946	2000	519	0-133	23	23
113.50	28°42'	116°37.5'	IV-19	1656	1710	499	0-130	40	40
113.55	28°35'	117°00'	IV-19	1321	1335	557	0-129	22	22
113.60	28°28.9'	117°12.4'	IV-19	1131	1146	570	0-129	19	19
113.65	28°17.5'	117°32.9'	IV-19	0811	0826	574	0-121	14	14
113.70	28°06.4'	117°52'	IV-19	0516	0531	408	0-140	10	10
113.75	27°55.2'	118°12.5'	IV-19	0141	0156	532	0-138	21	21
113.80	27°44.8'	118°32.6'	IV-18	2236	2250	561	0-127	98	98
113.85	27°33.2'	118°52'	IV-18	1916	1931	449	0-132	9	9
113.90	27°22'	119°12.1'	IV-18	1616	1640	(499)	0-143	(6)	(6)
117.26	28°55.8'	114°40.8'	IV-20	1113	1121	297	0-65	10	10
117.30	28°50'	114°53.2'	IV-20	1347	1357	360	0-87	22	22
117.35	28°38.1'	115°16.1'	IV-20	1736	1750	550	0-136	53	53
117.40	28°28'	115°35.4'	IV-20	2116	2130	534	0-129	51	51
117.45	28°13'	115°52.5'	IV-21	1446	1500	531	0-139	24	24
117.50	28°07'	116°15.2'	IV-21	1826	1841	493	0-137	112	112
117.55	27°56'	116°35'	IV-21	2136	2150	520	0-139	67	67
117.60	27°44.5'	116°56.5'	IV-22	0111	0126	531	0-136	41	41
117.65	27°33.3'	117°16.2'	IV-22	0416	0430	493	0-142	28	28
117.70	27°22'	117°38'	IV-22	0926	0940	507	0-143	12	12
117.75	27°08.4'	118°01.5'	IV-22	1226	1241	542	0-136	15	15
117.80	27°04.5'	118°08.5'	IV-22	1416	1430	543	0-129	15	15
117.85	26°58.5'	118°24'	IV-22	1616	1630	525	0-137	10	10
117.90	26°47'	118°50'	IV-22	2116	2130	505	0-141	24	24
118.39	28°18.4'	115°23.8'	IV-21	0025	0041	517	0-128	242	56
119.33	28°19'	114°56'	IV-18	1142	1152	(313)	0-92	(77)	(77)
120.25	28°23'	114°14.5'	IV-18	1636	1640	138	0-34	65	65
120.30	28°13'	114°34'	IV-18	1410	1417	244	0-63	33	33
120.35	28°03'	114°53.5'	IV-18	0938	0945	253	0-62	47	47
120.40	27°56.5'	115°13.9'	IV-24	1344	1348	178	0-29	146	146
120.45	27°43.8'	115°29.6'	IV-24	1126	1140	(521)	0-136	(27)	(27)

Plankton volumes, Cruise 5904, April 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
120.50	27°34'	115°49'	IV-24	0646	0701	516	0-141	27	27
120.55	27°28.6'	116°09'	IV-24	0321	0336	505	0-142	54	54
120.60	27°12.5'	116°28.5'	IV-24	0026	0041	546	0-134	33	33
120.65	27°03'	116°48.5'	IV-23	2056	2111	532	0-136	41	41
120.70	26°54.2'	117°10.5'	IV-23	1756	1810	491	0-140	20	20
120.75	26°44'	117°29.5'	IV-23	1436	1451	523	0-139	23	23
120.80	26°36.8'	117°46.3'	IV-23	1231	1246	517	0-139	15	15
120.85	26°25'	118°07'	IV-23	0851	0905	515	0-138	12	12
120.90	26°15'	118°25'	IV-23	0301	0315	514	0-139	35	35
130.30	26°29'	113°29'	IV-9	1743	1749	254	0-55	252	252
130.35	26°19'	113°48.5'	IV-9	2031	2046	498	0-136	34	34
130.40	26°03.5'	114°16.5'	IV-10	0041	0056	475	0-134	36	36
130.45	25°59'	114°26'	IV-10	0221	0235	457	0-133	48	48
130.50	25°49'	114°45'	IV-10	0526	0540	502	0-136	22	22
130.55	25°39'	115°04'	IV-10	0746	0801	(480)	0-141	(29)	(29)
130.60	25°31'	115°20'	IV-10	1056	1111	547	0-124	27	27
133.25	26°04.5'	112°48'	IV-11	1348	1354	226	0-54	119	119
133.30	25°52'	113°08'	IV-11	1056	1111	(545)	0-124	(83)	(83)
133.35	25°44.5'	113°26.5'	IV-11	0626	0640	506	0-139	40	40
133.40	25°34.5'	113°45.5'	IV-11	0351	0406	391	0-157	59	59
133.45	25°24.5'	114°05'	IV-11	0011	0026	441	0-149	86	86
133.50	25°14.5'	114°24'	IV-10	2131	2146	478	0-146	25	25
133.55	25°04.5'	114°43'	IV-10	1826	1841	512	0-135	35	35
133.60	24°54.5'	115°01.2'	IV-10	1541	1555	511	0-129	20	20
134.36	25°33'	113°20'	IV-11	0806	0821	(714)	0-99	(167)	(167)
137.23	25°34'	112°18.5'	IV-11	1785	1804	224	0-54	62	62
137.30	25°20.5'	112°44.5'	IV-11	2126	2140	515	0-141	81	81
137.35	25°10'	113°04.5'	IV-12	0006	0021	560	0-127	64	64
137.40	25°00'	113°23.5'	IV-12	0256	0310	496	0-132	68	68
137.45	24°50'	113°42.5'	IV-12	0501	0515	489	0-137	16	16
137.50	24°40'	114°02'	IV-12	0756	0811	506	0-136	22	22
137.55	24°30'	114°20.5'	IV-12	1016	1031	481	0-149	29	29
137.60	24°20'	114°39.5'	IV-12	1256	1310	506	0-126	34	34
137.70	23°59.5'	115°18'	IV-12	1731	1746	492	0-135	22	22
137.80	23°40'	115°55'	IV-12	2226	2241	497	0-138	46	46
140.30	24°45.5'	112°24'	IV-14	0218	0226	284	0-80	98	98
140.35	24°35.5'	112°42.5'	IV-13	2346	0000	512	0-135	45	45
140.40	24°27'	112°56'	IV-13	2106	2121	505	0-138	57	57
140.45	24°20'	113°09'	IV-13	1826	1840	(514)	0-131	(33)	(33)

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
140.50	24°05.5'	113°39.5'	IV-13	1536	1550	474	0-138	21	21
140.55	24°02'	114°00'	IV-13	1136	1150	506	0-131	22	22
140.60	23°45'	114°08.5'	IV-13	0901	0916	488	0-139	21	21
143.26	24°19'	111°48'	IV-14	1943	1950	236	0-66	195	195
143.30	24°10.5'	112°03'	IV-14	2156	2211	501	0-140	62	62
143.35	23°58.5'	112°21.5'	IV-15	0046	0100	481	0-139	66	66
143.40	23°47.5'	112°39'	IV-15	0341	0355	529	0-136	42	42
143.45	23°38.5'	112°56'	IV-15	0601	0616	514	0-134	19	19
143.50	23°29.5'	113°14.5'	IV-15	0916	0931	489	0-141	23	23
143.55	23°17'	113°38'	IV-15	1146	1200	457	0-140	31	31
143.60	23°10.5'	113°55'	IV-15	1431	1446	460	0-135	17	17
147.20	23°56'	111°03.5'	IV-16	2132	2142	292	0-94	79	79
147.25	23°51.5'	111°20'	IV-16	1911	1925	429	0-152	72	72
147.30	23°34'	111°42'	IV-16	1411	1425	465	0-141	24	24
147.35	23°24.5'	112°00'	IV-16	1016	1031	484	0-143	27	27
147.40	23°14.5'	112°18.5'	IV-16	0706	0720	(480)	0-140	(25)	(25)
147.45	23°06'	112°34.5'	IV-16	0356	0410	480	0-136	23	23
147.50	22°55'	112°55'	IV-16	0121	0135	498	0-142	54	54
147.55	22°44.5'	113°14.5'	IV-15	2226	2241	463	0-140	39	39
147.60	22°34'	113°34'	IV-15	1926	1940	485	0-140	35	35
			Plankton Volumes, Cruise 5905, May 1959						
60.52	37°53.5'	123°02'	V-25	0418	0426	265	0-67	948	926
60.55	37°47.5'	123°15'	V-25	0238	0246	266	0-84	2168	1091
60.60	37°38.5'	123°29'	V-24	2311	2326	400	0-136	4619	3478
60.65	37°28'	123°54.5'	V-24	2046	2100	462	0-141	5296	2221
60.70	37°19'	124°16'	V-24	1846	1900	(468)	0-142	(4544)	(1411)
60.75	37°09'	124°39'	V-24	1636	1650	578	0-109	758	497
60.80	36°57.5'	125°04'	V-24	1421	1436	503	0-134	1091	988
60.85	36°47'	125°25'	V-24	1206	1220	466	0-136	2249	913
60.90	36°37'	125°47'	V-24	0901	0916	478	0-139	316	251
63.52			Not occupied.						
63.55	37°14'	122°49.5'	V-23	1213	1228	493	0-136	520	507
63.60	37°02.5'	123°11.5'	V-23	1456	1510	488	0-139	955	830
63.65	36°53'	123°32'	V-23	1726	1740	471	0-135	1331	798
63.70	36°43'	123°55.5'	V-23	1941	1955	(484)	0-135	(5265)	(3787)
63.75	36°33'	124°17'	V-23	2150	2205	444	0-135	1484	1155

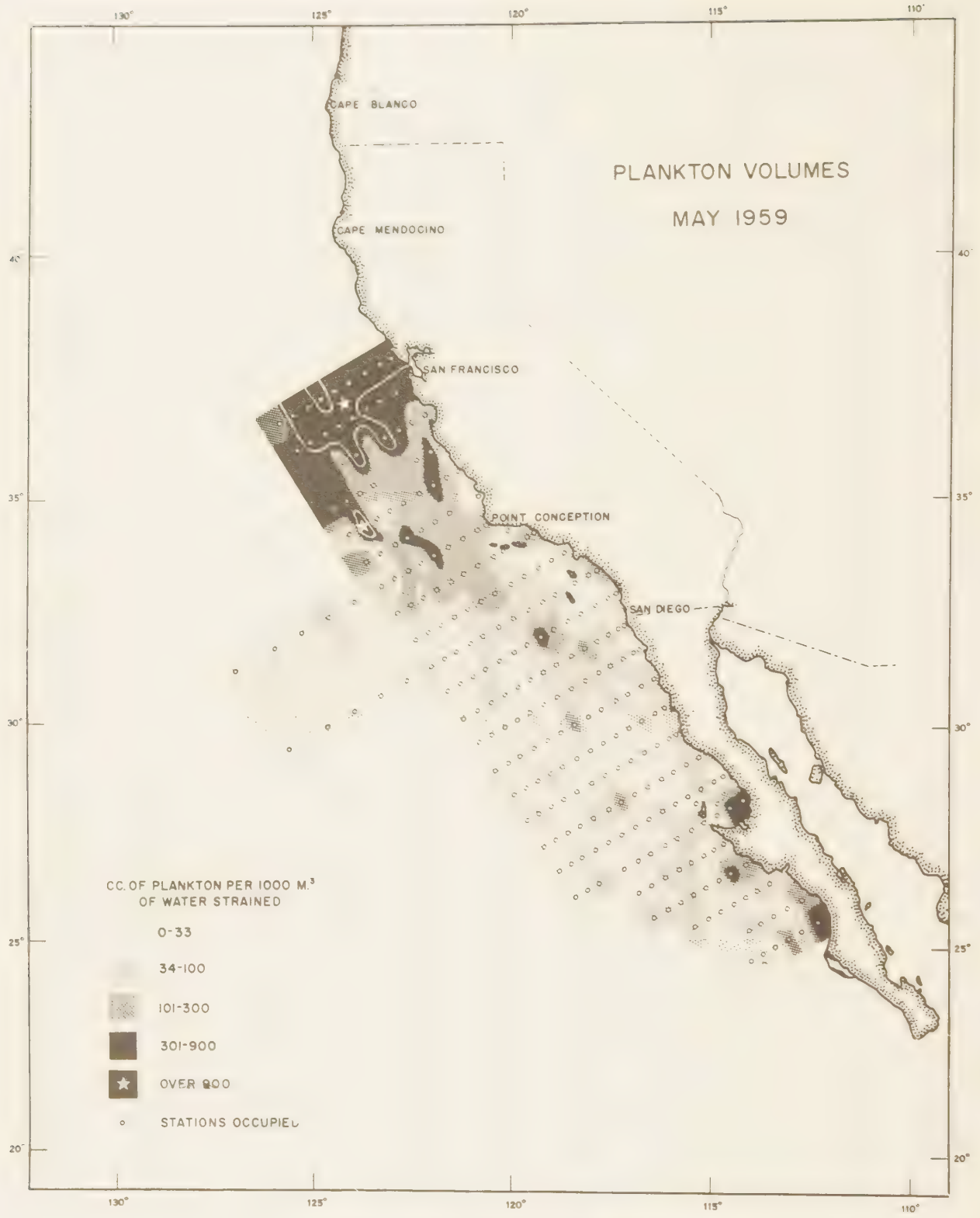

Figure 8.--Plankton volumes, May 1959.

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m.³ strained: Total	Vol. per 1,000 m.³ strained: Small organism
						m^3	m.	cc.	cc.
63.80	36°23'	124°38'	V-23&24	2356	0011	449	0-140	1589	1589
63.85	36°13'	124°59'	V-24	0236	0251	448	0-140	1046	988
63.90	36°03'	125°21'	V-24	0456	0511	469	0-137	612	514
67.50	36°49'	122°04.6'	V-21	0115	0125	325	0-98	197	197
67.55	36°39'	122°26'	V-21	0345	0400	416	0-140	171	171
67.60	36°29'	122°47.5'	V-21	0616	0630	399	0-137	424	424
67.65	36°19'	123°09'	V-21	0831	0845	410	0-128	1451	1451
67.70	36°08'	123°30'	V-21	1056	1110	505	0-136	178	178
67.75	35°57.8'	123°51.2'	V-21	1356	1410	475	0-143	1157	1060
67.80	35°48'	124°13'	V-21	1806	1821	(474)	0-144	(257)	(257)
70.52	36°08.5'	121°49.8'	V-20	1216	1230	474	0-139	76	76
70.55	36°03'	122°02'	V-20	1356	1411	466	0-137	470	470
70.60	35°53'	122°23'	V-20	1631	1646	526	0-139	240	240
70.75	35°24'	123°27.3'	V-18	2136	2150	501	0-137	140	140
70.80	35°18.8'	123°48'	V-18	1856	1910	393	0-134	145	145
70.85	35°03'	124°09'	V-18	1601	1616	410	0-142	488	356
70.90	34°53'	124°30'	V-18	1235	1250	494	0-138	848	804
73.51	35°35.5'	121°20'	V-17	0921	0935	449	0-143	67	67
73.55	35°27.5'	121°37.5'	V-17	1116	1130	484	0-134	128	128
73.60	35°18'	121°58.5'	V-17	1406	1420	456	0-140	576	576
73.65	35°08.3'	122°18.5'	V-17	1635	1650	419	0-142	138	138
73.70	34°58.2'	122°40'	V-17	2040	2055	469	0-142	185	185
73.75	34°45.5'	123°07'	V-17	2311	2326	460	0-140	46	46
73.80	34°33.3'	123°32.5'	V-18	0156	0210	(467)	0-141	(64)	(64)
73.85	34°21'	123°59'	V-18	0436	0450	468	0-141	1369	1241
73.90	34°10.5'	124°21'	V-18	0700	0715	473	0-138	59	59
77.50	35°04.4'	120°52'	V-16	0857	0908	418	0-108	31	31
77.60	34°44'	121°34'	V-14	1435	1450	498	0-138	140	140
77.65	34°34'	121°55'	V-14	1051	1106	461	0-139	111	111
77.70	34°24.2'	122°16'	V-14	0736	0750	420	0-141	167	167
77.75	34°14.2'	122°36'	V-14	0431	0446	481	0-142	370	358
77.80	34°04.2'	122°57'	V-14	0205	0220	450	0-145	515	178
77.85	33°54'	123°18'	V-13	2345	2359	472	0-135	59	59
77.90	33°44'	123°39'	V-13	2121	2136	482	0-138	216	199
80.52	34°24.5'	120°36'	V-12	2205	2220	475	0-139	130	130
80.55	34°19'	120°48'	V-12&13	2350	0005	499	0-139	122	122
80.60	34°09'	121°09'	V-13	0211	0226	462	0-140	165	165
80.65	33°59'	121°30'	V-13	0526	0540	509	0-138	198	198
80.70	33°50'	121°52'	V-13	0736	0751	489	0-136	442	442

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 $m.^3$ strained: Total	Vol. per 1,000 $m.^3$ strained: Small organism
						$m.^3$	m.	cc.	cc.
80.75	33°40'	122°12'	V-13	0956	1011	477	0-137	86	75
80.80	33°29'	122°32'	V-13	1221	1235	447	0-141	248	248
80.85	33°19'	122°53'	V-13	1456	1510	470	0-138	89	89
80.90	33°09'	123°13'	V-13	1716	1730	543	0-132	41	41
80.100	32°49'	123°54'	V-11	0546	0601	492	0-141	28	28
80.110	32°29'	124°34.5'	V-10	0106	0120	471	0-144	40	40
80.120	32°10.6'	125°14'	V-10	1921	1935	473	0-137	25	25
80.130	31°49'	125°56'	V-10	1431	1446	499	0-138	14	14
80.145	31°25.3'	126°50'	V-10	0706	0721	488	0-141	14	14
82.47	34°15'	119°58'	V-12	1826	1840	501	0-135	4	4
83.40	34°14'	119°22'	V-12	1530	1531	68	0-12	205	205
83.43	34°08'	119°34'	V-12	1341	1355	496	0-127	260	260
83.51	33°52'	120°08.3'	V-12	0838	0846	269	0-64	30	30
83.55	33°44'	120°24.5'	V-12	0701	0716	496	0-138	93	93
83.60	33°34'	120°45'	V-12	0346	0400	467	0-141	143	143
83.65	33°22'	121°04.5'	V-12	0046	0100	472	0-139	269	269
83.70	33°14'	121°26.5'	V-11	2216	2230	496	0-136	137	137
83.75	33°04'	121°46.5'	V-11	2001	2016	486	0-133	187	187
83.80	32°54'	122°07'	V-11	1750	1805	554	0-135	69	69
83.85	32°44'	122°27.5'	V-11	1536	1550	483	0-142	133	133
83.90	32°34'	122°47.5'	V-11	1316	1331	478	0-144	42	42
87.35	33°50'	118°37.5'	V-7	0506	0520	537	0-139	73	73
87.40	33°40'	118°58.5'	V-7	0726	0740	487	0-136	18	18
87.45	33°30'	119°19'	V-7	0956	1011	484	0-145	25	25
87.50	33°20'	119°39.5'	V-7	1220	1227	218	0-64	74	74
87.55	33°10'	120°00.5'	V-7	1441	1456	471	0-142	96	96
87.60	33°00'	120°21.5'	V-7	1711	1725	453	0-141	132	132
87.65	32°50'	120°41.5'	V-7	2046	2100	422	0-144	128	128
87.70	32°39.3'	121°03'	V-7	2336	2350	427	0-145	94	94
87.75	32°29'	121°25.4'	V-8	0216	0231	468	0-142	81	81
87.80	32°19'	121°47.7'	V-8	0501	0516	505	0-139	20	20
87.85	32°09'	122°09.5'	V-8	0736	0750	488	0-144	20	20
87.90	31°59'	122°32'	V-8	0946	1000	473	0-140	23	23
90.28	33°28.3'	117°47'	V-6	2051	2105	493	0-133	211	211
90.32	33°20.5'	118°03'	V-7	0005	0021	528	0-141	45	45
90.37	33°11'	118°24'	V-7	0341	0356	482	0-141	25	25
90.45	32°56.5'	118°57'	V-7	0856	0911	472	0-140	70	70
90.50	32°44.7'	119°16.6'	V-7	1312	1322	339	0-98	47	47
90.55	32°34.7'	119°37'	V-7	1741	1756	492	0-140	41	41

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
90.60	32°24.6'	119°57.6'	V-7	2151	2206	454	0-145	88	88
90.65	32°14.4'	120°17.5'	V-8	0036	0050	469	0-144	75	75
90.70	32°04'	120°38.5'	V-8	0341	0355	475	0-142	46	46
90.75	31°53.8'	120°58.4'	V-8	0641	0656	459	0-141	22	22
90.80	31°43.2'	121°19'	V-8	1041	1056	434	0-147	23	23
90.85	31°34.5'	121°39.2'	V-8	1326	1341	463	0-144	22	22
90.90	31°25'	121°59'	V-8	1656	1710	493	0-140	247	81
90.100	31°04.5'	122°40'	V-8	1521	1535	509	0-142	20	20
90.110	30°44.5'	123°20'	V-9	0005	0019	488	0-142	20	20
90.120	30°24.5'	124°00.5'	V-9	0426	0440	488	0-142	20	20
90.130	30°04.5'	124°40'	V-9	0831	0846	495	0-139	16	16
90.145	29°34.5'	125°40'	V-9	1541	1556	491	0-140	14	14
93.28	32°54.6'	117°22'	V-10	1811	1826	505	0-142	48	48
93.30	32°50'	117°31.5'	V-10	1611	1626	500	0-141	8	8
93.35	32°40'	117°52'	V-10	1326	1340	495	0-140	16	16
93.40	32°30'	118°12.5'	V-10	1001	1016	524	0-139	19	19
93.45	32°20'	118°33'	V-10	0631	0646	486	0-142	33	33
93.50	32°09.5'	118°54'	V-10	0336	0350	501	0-143	104	104
93.55	32°00'	119°14'	V-9	2321	2336	579	0-139	377	377
93.60	31°50.5'	119°34'	V-12	1356	1411	492	0-140	57	57
93.65	31°40'	119°54.5'	V-12	1626	1641	485	0-141	29	29
93.70	31°31'	120°13.8'	V-12	1916	1930	477	0-142	25	25
93.75	31°20'	120°35'	V-12	2201	2216	473	0-143	63	63
93.80	31°10'	120°55'	V-9	0501	0515	515	0-140	19	19
93.85	31°00'	121°15'	V-9	0116	0130	462	0-144	24	24
93.90	30°50.2'	121°35'	V-8	2216	2230	465	0-145	30	30
97.30	32°15'	117°08.5'	V-11	1513	1520	265	0-62	75	75
97.32	32°11.5'	117°16.5'	V-11	1626	1641	485	0-143	27	27
97.35	32°05.5'	117°28.7'	V-11	1826	1840	502	0-141	76	76
97.40	31°55'	117°50'	V-11	2106	2121	509	0-141	75	75
97.45	31°45'	118°10'	V-12	0006	0021	466	0-144	114	114
97.50	31°35'	118°30.5'	V-12	0351	0406	481	0-141	102	85
97.55	31°25'	118°50'	V-12	0636	0651	481	0-142	39	39
97.60	31°15'	119°11.5'	V-12	0911	0926	492	0-141	37	37
97.65	31°04'	119°29'	V-13	0451	0506	497	0-141	20	20
97.70	30°54'	119°50'	V-13	0736	0750	475	0-140	29	29
97.75	30°44'	120°10'	V-13	1026	1041	468	0-144	24	24

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
97.80	30°35'	120°29'	V-13	1241	1256	443	0-151	45	45
97.85	30°24.5'	120°50.5'	V-13	1536	1551	497	0-140	12	12
97.90	30°14'	121°09'	V-13	1821	1836	494	0-142	12	12
100.29	31°42.2'	116°43.5'	V-15	1411	1426	455	0-146	31	31
100.30	31°40.7'	116°46.7'	V-15	1326	1341	471	0-142	25	25
100.35	31°31.7'	117°06'	V-15	1056	1110	476	0-145	84	84
100.40	31°21.5'	117°25.7'	V-15	0756	0811	446	0-147	99	99
100.45	31°10.5'	117°46'	V-15	0456	0510	475	0-141	76	76
100.50	31°00'	117°07'	V-26	0816	0831	463	0-142	65	65
100.55	30°50'	118°27'	V-26	0526	0540	490	0-141	47	47
100.60	30°40.3'	118°47'	V-26	0236	0250	435	0-148	41	41
100.65	30°28'	119°07'	V-14	1421	1435	493	0-133	24	24
100.70	30°21.2'	119°29'	V-14	1146	1200	466	0-143	45	45
100.75	30°11'	119°48'	V-14	0811	0826	477	0-144	21	21
100.80	30°01'	120°07.5'	V-14	0526	0540	509	0-142	8	8
100.85	29°50'	120°28'	V-14	0236	0250	490	0-145	10	10
100.90	29°40.5'	120°47.5'	V-13	2256	2310	448	0-148	20	20
103.30	31°05.2'	116°25'	V-15	1853	1900	228	0-62	35	35
103.35	30°55.2'	116°45'	V-15	2131	2146	488	0-139	53	53
103.40	30°45'	117°05.5'	V-16	0011	0025	490	0-142	29	29
103.45	30°35.5'	117°25'	V-16	0256	0311	465	0-145	60	60
103.50	30°26'	117°45'	V-16	0541	0556	462	0-143	22	22
103.55	30°16'	118°05'	V-16	0826	0840	429	0-146	9	9
103.60	30°10'	118°25'	V-16	1256	1310	462	0-137	104	104
103.65	29°56'	118°45'	V-16	1626	1641	491	0-137	6	6
103.70	29°43.5'	119°05.5'	V-16	1921	1936	475	0-140	6	6
103.75	29°34'	119°26'	V-16	2206	2221	457	0-141	9	9
103.80	29°25'	119°46'	V-17	0056	0110	464	0-143	17	17
103.85	29°15'	120°06'	V-17	0356	0411	472	0-140	17	17
103.90	29°05.5'	120°26'	V-17	0641	0656	475	0-141	6	6
107.32	30°26'	116°11'	V-18	2341	2356	491	0-136	47	47
107.35	30°20'	116°22.8'	V-18	2156	2211	462	0-140	32	32
107.40	30°10.5'	116°32.7'	V-18	1941	1956	486	0-138	37	37
107.45	30°00.8'	116°57.8'	V-18	1646	1700	529	0-129	15	15
107.50	29°51.7'	117°20'	V-18	1346	1400	440	0-140	5	5
107.55	29°39'	117°42.5'	V-18	1026	1040	458	0-139	17	17
107.60	29°31.5'	118°00.5'	V-18	0726	0741	494	0-141	10	10
107.65	29°21'	118°22'	V-18	0311	0326	476	0-141	17	17
107.70	29°10'	118°43'	V-18	0011	0026	457	0-144	26	26

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
107.75	29°01.5'	119°01'	V-17	2111	2126	462	0-141	48	48
107.80	28°51.3'	119°20'	V-17	1821	1836	477	0-140	13	13
107.85	28°42'	119°39.5'	V-17	1521	1536	479	0-142	6	6
107.90	28°30'	120°03'	V-17	1146	1201	465	0-146	9	9
110.33	29°50'	115°52'	V-19	1623	1630	253	0-63	83	83
110.35	29°46'	116°00'	V-19	1736	1751	497	0-136	32	32
110.40	29°36'	116°19.5'	V-19	2041	2056	492	0-134	30	30
110.45	29°26'	116°40'	V-20	2326	2340	460	0-145	30	30
110.50	29°16'	116°59'	V-20	0156	0210	477	0-145	25	25
110.55	29°05.5'	117°19'	V-20	0456	0511	474	0-140	15	15
110.60	28°55.5'	117°39'	V-20	0811	0826	472	0-140	8	8
110.65	28°45'	117°58.5'	V-20	1100	1114	481	0-139	8	8
110.70	28°36'	118°19'	V-20	1845	1859	438	0-144	14	14
110.75	28°27'	118°37.5'	V-20	2130	2145	487	0-139	21	21
110.80	28°18'	118°58'	V-21	0021	0035	491	0-142	18	18
110.85	28°08'	119°17'	V-21	0311	0326	480	0-138	38	38
110.90	28°00'	119°38'	V-21	0626	0640	481	0-140	4	4
113.30	29°22.5'	115°17.5'	V-23	0028	0036	250	0-71	92	92
113.35	29°12'	115°39'	V-22	2111	2127	593	0-135	73	73
113.40	28°58.7'	116°02'	V-22	1736	1751	485	0-140	33	33
113.45	28°50'	116°20'	V-22	1451	1506	510	0-134	14	14
113.50	28°39.4'	116°40.5'	V-22	1136	1150	438	0-148	18	18
113.55	28°30'	116°59'	V-22	0835	0850	474	0-136	19	19
113.60	28°20'	117°17.4'	V-22	0556	0611	490	0-143	135	135
113.65	28°10'	117°36'	V-22	0145	0200	454	0-147	35	35
113.70	28°00'	117°54'	V-21	2300	2315	481	0-137	50	50
113.75	27°49.7'	118°13'	V-21	2011	2025	475	0-138	17	17
113.80	27°40.3'	118°33'	V-21	1716	1730	473	0-141	4	4
113.85	27°31'	118°52.6'	V-21	1436	1450	473	0-145	4	4
113.90	27°28.5'	119°17'	V-21	1131	1146	464	0-142	2	2
117.26	28°56'	114°41'	V-23	0508	0515	252	0-70	24	24
117.30	28°48'	114°56.5'	V-23	0730	0740	322	0-84	25	25
117.35	28°38'	115°16'	V-23	0945	1000	454	0-136	66	66
117.40	28°28'	115°35.5'	V-23	1716	1730	511	0-136	10	10
117.45	28°18'	115°55.2'	V-23	2021	2036	481	0-139	23	23
117.50	28°08'	116°15'	V-24	0056	0110	465	0-145	43	43
117.55	27°57'	116°33'	V-24	0346	0401	477	0-141	23	23
117.60	27°46.4'	116°53.5'	V-24	0636	0650	480	0-141	27	27
117.65	27°36'	117°15'	V-24	0916	0931	480	0-143	13	13

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
117.70	27°25'	117°37'	V-24	1156	1210	495	0-139	12	12
117.75	27°17'	117°52'	V-24	1400	1415	481	0-141	6	6
117.80	27°06'	118°13'	V-24	1645	1700	477	0-140	4	4
117.85	26°55'	118°34.5'	V-24	1915	1930	479	0-141	8	8
117.90	26°47.5'	118°49.5'	V-24	2116	2130	476	0-141	23	23
118.39	28°18.5'	115°23.2'	V-23	1300	1314	454	0-139	24	24
119.33	28°19'	114°53'	VI-4	0747	0757	337	0-91	92	92
120.25	28°23'	114°15'	VI-4	0248	0255	227	0-56	313	313
120.30	28°13.1'	114°34.2'	VI-4	0522	0532	323	0-92	467	467
120.35	28°03.2'	114°54.6'	VI-4	0948	0955	274	0-70	22	22
120.40	27°56.5'	115°14'	V-17	0439	0443	141	0-26	85	85
120.45	27°42.1'	115°40.5'	V-17	0026	0040	508	0-138	91	91
120.50	27°29.2'	115°44'	V-16	2156	2210	490	0-140	37	37
120.55	27°17.2'	116°06'	V-16	1730	1744	492	0-136	12	12
120.60	27°06.5'	116°28'	V-16	1430	1444	492	0-136	16	16
120.65	26°54.1'	116°50'	V-16	1115	1130	493	0-137	12	12
120.70	26°46.4'	117°06.8'	V-16	0841	0855	497	0-137	12	12
120.75			Sample spoiled.						
120.80	26°32'	117°48.4'	V-16	0246	0301	509	0-133	45	45
120.85	26°26.9'	118°10.8'	V-15	2345	2400	474	0-158	32	32
120.90	26°24'	118°28.2'	V-15	2115	2129	477	0-140	31	31
123.37	27°24.1'	114°39.7'	V-14	1013	1020	250	0-63	64	64
123.42	27°15'	114°59.7'	V-14	1356	1410	481	0-142	29	29
123.45	27°07.5'	115°10.8'	V-14	1630	1645	608	0-113	7	7
123.50	26°57.8'	115°34.5'	V-14	2130	2144	478	0-142	75	75
123.55	26°49.6'	115°51.7'	V-15	0036	0051	482	0-141	58	58
123.60	26°32.5'	116°07'	V-15	0356	0410	485	0-136	41	41
123.65	26°26.5'	116°30'	V-15	0741	0755	511	0-133	33	33
123.70	26°20.2'	116°52.8'	V-15	1030	1044	428	0-151	33	33
127.34	26°55.6'	114°06.1'	V-13	0303	0310	186	0-63	107	107
127.40	26°43'	114°29.7'	V-12	2341	2356	529	0-137	427	427
127.45	26°33'	114°49'	V-12	2045	2059	492	0-140	93	93
127.50	26°26.5'	115°08.9'	V-12	1730	1745	513	0-139	31	31
127.55	26°22'	115°34.5'	V-12	1430	1444	518	0-131	54	54
127.60	26°23.5'	115°58.2'	V-12	1111	1125	521	0-134	31	31
127.65	26°10'	116°18.3'	V-12	0756	0810	508	0-138	45	45
127.70	25°57.8'	116°35.3'	V-12	0506	0520	366	0-138	44	44
130.30	26°30'	113°29.3'	V-11	0114	0121	228	0-67	57	57
130.35	26°19.2'	113°52'	V-11	0411	0426	527	0-135	61	61

Plankton volumes, Cruise 5905, May 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
130.40	26°05.1'	114°08.4'	V-11	0806	0821	516	0-136	19	19
130.45	25°52.9'	114°26.7'	V-11	1116	1131	523	0-135	11	11
130.50	25°46.9'	114°42.8'	V-11	1400	1415	500	0-135	32	32
130.55	25°35'	115°04'	V-11	1715	1730	502	0-138	28	28
130.60	25°29.8'	115°24.2'	V-11	2015	2030	504	0-136	643	99
133.25	26°04.7'	112°44.6'	V-10	1820	1828	283	0-67	124	124
133.30	25°52'	113°06.3'	V-10	1530	1544	504	0-134	14	14
133.35	25°40'	113°23.7'	V-10	1226	1241	506	0-140	22	22
133.40	25°28.7'	113°44.2'	V-10	0916	0931	510	0-133	35	35
133.45	25°18.5'	114°04.1'	V-10	0636	0651	599	0-116	37	37
133.50			Sample spoiled.						
137.23	25°34'	112°19'	V-9	0228	0235	244	0-57	418	418
137.30	25°19.7'	112°44'	V-9	0626	0641	510	0-137	47	47
137.35	25°07.5'	113°05'	V-9	0936	0950	517	0-143	118	118
137.40	25°00'	113°23.5'	V-9	1321	1336	494	0-136	20	20
137.45	24°49.8'	113°42.7'	V-9	1620	1635	522	0-129	25	25
137.50	24°40.8'	114°00'	V-9	1927	1941	441	0-149	32	32
			Plankton Volumes, Cruise 5906, June 1959						
77.50	35°04'	120°52'	VI-17	0831	0845	490	0-140	47	47
77.55	34°54.5'	121°13'	VI-17	1046	1100	404	0-127	208	208
77.60	34°44'	121°34'	VI-17	1331	1345	424	0-136	344	344
77.65	34°34'	121°55'	VI-17	1611	1625	412	0-138	204	204
77.70	34°24.2'	122°16'	VI-17	1851	1906	568	0-138	246	246
77.80	34°04.2'	122°57'	VI-14	0406	0421	390	0-143	546	546
77.85	33°54'	123°18'	VI-14	0101	0119	589	0-140	151	151
77.90	33°44'	123°38.5'	VI-13	2211	2226	482	0-141	129	129
80.52	34°24.7'	120°36'	VI-12	2156	2211	477	0-127	151	151
80.55	34°19'	120°48'	VI-12	2321	2336	444	0-135	387	387
80.60	34°09'	121°09'	VI-13	0146	0201	405	0-138	514	514
80.65	33°59'	121°30'	VI-13	0506	0521	478	0-136	215	215
80.70	33°49'	121°51'	VI-13	0721	0736	360	0-139	397	397
80.75	33°38.5'	122°11.5'	VI-13	0916	0930	471	0-137	274	274
80.80	33°33'	122°30.8'	VI-13	1146	1200	394	0-139	239	239
80.85	33°19'	122°53'	VI-13	1431	1446	452	0-138	161	161
80.90	33°09'	123°13'	VI-13	1701	1716	421	0-138	225	225
82.47	34°15'	119°58'	VI-12	1746	1801	508	0-123	445	445

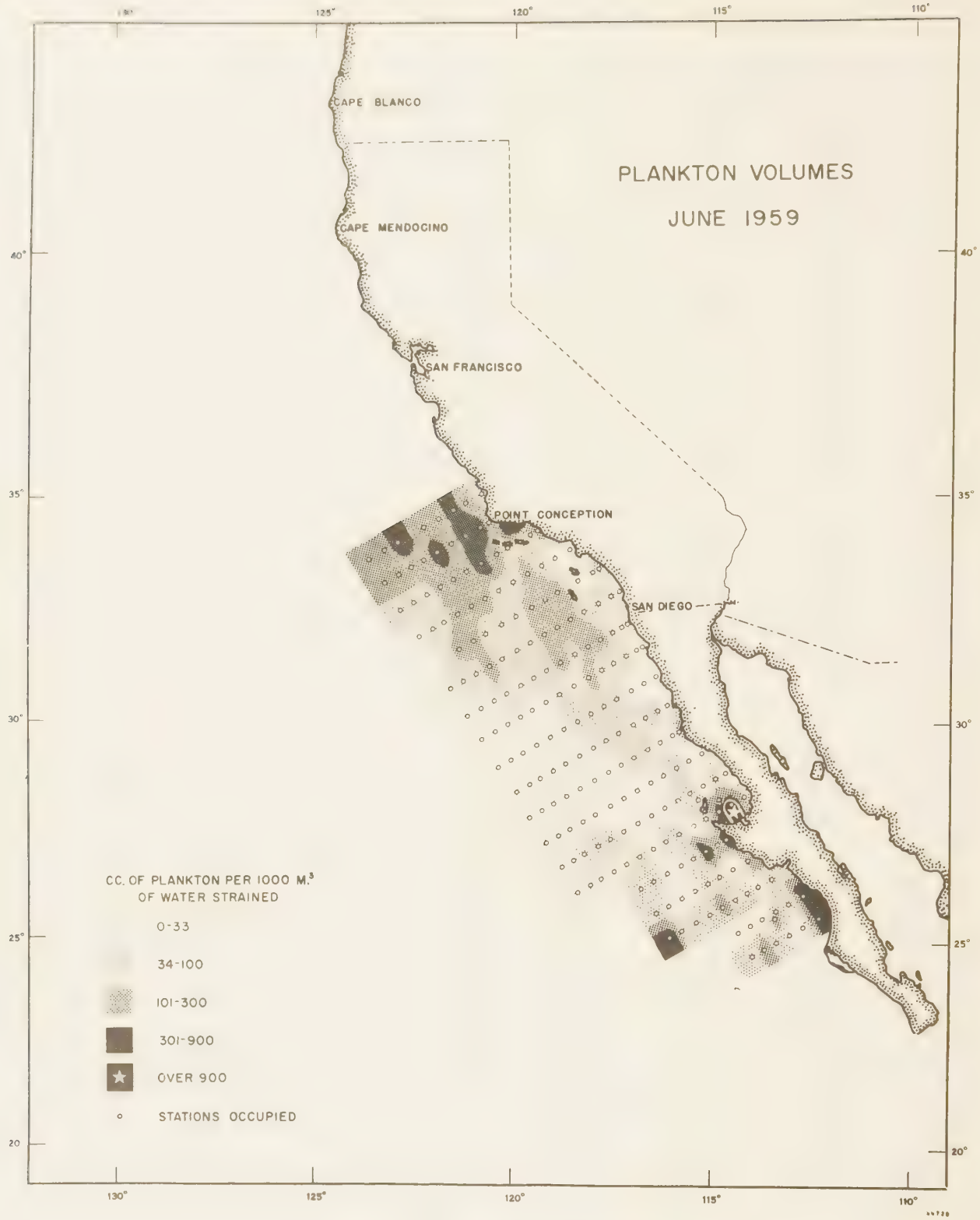

Figure 9.--Plankton volumes, June 1959.

Plankton volumes, Cruise 5906, June 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
83.40	34°14'	119°22'	VI-12	1439	1442	82	0-20	109	109
83.43	34°08'	119°34'	VI-12	1256	1310	461	0-138	82	82
83.51	33°52'	120°08.3'	VI-12	0838	0846	314	0-80	76	76
83.55	33°44'	120°24.5'	VI-12	0646	0701	448	0-143	243	243
83.60	33°34'	120°45'	VI-12	0341	0356	470	0-141	630	306
83.65	33°17'	121°03.3'	VI-12	0051	0106	468	0-138	143	143
83.70	33°08.8'	121°24'	VI-11	2231	2246	477	0-137	237	237
83.75	33°00'	121°45'	VI-11	2006	2021	454	0-140	551	276
83.80	32°51.5'	122°06'	VI-11	1736	1750	477	0-139	75	75
83.85	32°42.5'	122°26.5'	VI-11	1506	1520	468	0-143	86	86
83.90	32°34.5'	122°48'	VI-11	1236	1251	463	0-136	37	37
87.35	33°50'	118°37.5'	VI-10	0441	0556	518	0-132	25	25
87.40	33°40'	118°58.5'	VI-10	0706	0720	546	0-131	22	22
87.45	33°30'	119°19'	VI-10	0941	0955	551	0-122	98	98
87.50	33°20'	119°39.5'	VI-10	1218	1225	256	0-67	168	168
87.55	33°10'	120°00.5'	VI-10	1441	1455	431	0-142	79	79
87.60	33°00'	120°21.5'	VI-10	1706	1721	453	0-139	93	93
87.65	32°49.5'	120°42'	VI-10	2006	2021	463	0-138	218	218
87.70	32°39.5'	120°01'	VI-10	2222	2236	416	0-136	144	144
87.75	32°29.5'	121°22'	VI-11	0051	0106	478	0-134	107	107
87.80	32°19.5'	121°43'	VI-11	0311	0325	433	0-133	95	95
87.85	32°09'	122°03'	VI-11	0536	0550	474	0-132	36	36
87.90	31°59'	122°24'	VI-11	0806	0820	494	0-137	26	26
90.28	33°28.5'	117°46.7'	VI-19	1211	1226	480	0-120	52	52
90.32	33°22'	118°03.7'	VI-19	0936	0951	602	0-92	8	8
90.37	33°10.5'	118°23.5'	VI-19	0611	0626	531	0-107	4	4
90.45	32°54.8'	118°56.3'	VI-19	0210	0225	446	0-132	112	112
90.50	32°44.7'	119°16.5'	VI-18&19	2346	0001	447	0-126	168	168
90.55	32°16.7'	119°39.5'	VI-18	1916	1930	462	0-133	123	123
90.60	32°10'	120°00'	VI-18	1456	1511	549	0-109	100	100
90.65	32°04'	120°19'	VI-18	1216	1231	480	0-135	60	60
90.70	31°58'	120°37'	VI-18	0911	0926	492	0-130	59	59
90.75	31°52'	120°56'	VI-18	0746	0801	473	0-121	171	171
90.80	31°44'	121°19'	VI-18	0306	0321	455	0-134	270	270
93.28	32°54.5'	117°22'	VI-15	1405	1420	507	0-129	20	20
93.30	32°50'	117°31.5'	VI-15	1608	1622	464	0-134	34	34
93.35	32°40'	117°51.8'	VI-15	1931	1945	523	0-120	52	52
93.40	32°31.5'	118°12.7'	VI-15	2246	2300	528	0-120	42	42
93.45	32°20'	118°33'	VI-16	0155	0210	440	0-148	275	275

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
93.50	32°10'	118°53.5'	VI-16	0425	0441	452	0-151	212	212
93.55	32°00'	119°13'	VI-16	0811	0825	527	0-127	180	180
93.60	31°54'	119°38'	VI-16	1016	1031	496	0-139	89	89
93.65	31°47.5'	119°54.5'	VI-16	1702	1716	448	0-147	62	62
93.70	31°40'	120°12.5'	VI-16	1846	1901	477	0-142	90	90
93.75	31°15'	120°34'	VI-29	0816	0830	462	0-128	299	299
93.80	31°05'	120°55'	VI-29	0536	0551	436	0-141	92	92
93.85	30°55.4'	121°15'	VI-29	0111	0126	437	0-136	41	41
93.90	30°46'	121°36.5'	VI-28	2136	2150	398	0-152	33	33
97.30	32°15.5'	117°08.6'	VI-26	1529	1533	170	0-42	35	35
97.32	32°11.5'	117°16.5'	VI-26	1711	1726	439	0-133	16	16
97.35	32°06.5'	117°27.6'	VI-26	1911	1925	425	0-140	71	71
97.40	31°58'	117°45.6'	VI-26	2224	2240	425	0-151	115	115
97.45	31°50'	118°05'	VI-27	0216	0230	437	0-139	110	110
97.50	31°41.5'	118°23'	VI-27	0511	0525	473	0-129	83	83
97.55	31°33.5'	118°42'	VI-27	0846	0901	464	0-136	129	129
97.60	31°26.5'	118°59'	VI-27	1256	1311	485	0-132	72	72
97.65	31°06'	119°30'	VI-27	1821	1836	485	0-131	54	54
97.70	30°53'	119°51'	VI-27	2216	2231	436	0-141	87	87
97.75	30°41'	120°10.2'	VI-28	0136	0151	442	0-135	48	48
97.80	30°28'	120°32'	VI-28	0511	0527	525	0-137	15	15
97.85	30°23'	120°49.5'	VI-28	0811	0826	425	0-148	28	28
97.90	30°20'	121°10.5'	VI-28	1211	1226	473	0-122	25	25
100.29	31°42.2'	116°43.4'	VI-26	0726	0740	479	0-132	15	15
100.30	31°40.5'	116°46.5'	VI-26	0641	0656	476	0-138	4	4
100.35	31°26.5'	117°16.6'	VI-26	0316	0331	444	0-144	45	45
100.40	31°18'	117°33'	VI-26	0051	0105	409	0-145	64	64
100.45	31°09'	117°50'	VI-25	2226	2240	467	0-131	92	92
100.50	31°00'	118°07'	VI-25	1956	2010	475	0-128	128	128
100.55	30°29.5'	118°27'	VI-25	1746	1800	439	0-144	18	18
100.60	30°41'	118°47.5'	VI-25	1426	1440	458	0-139	39	39
100.65	30°31'	119°07'	VI-25	1205	1220	472	0-144	30	30
100.70	30°21'	119°27'	VI-25	0926	0940	445	0-134	18	18
100.75	30°10.7'	119°47.5'	VI-25	0706	0721	458	0-136	26	26
100.80	29°55'	120°02'	VI-25	0416	0431	430	0-143	26	26
100.85	29°46.5'	120°23.5'	VI-25	0146	0200	440	0-143	27	27
100.90	29°38'	120°45'	VI-24	2231	2246	462	0-138	17	17
103.30	31°05.2'	116°25'	VI-23	0928	0934	242	0-42	25	25
103.35	30°55.5'	116°45'	VI-23	1516	1530	486	0-141	21	21

Plankton volumes, Cruise 5906, June 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
103.40	30°45.5'	117°05.5'	VI-23	1736	1751	509	0-135	16	16
103.45	30°36'	117°24'	VI-23	1956	2010	479	0-136	42	42
103.50	30°25.5'	117°44.5'	VI-23	2231	2245	480	0-137	56	56
103.55	30°16.5'	118°05'	VI-24	0046	0101	487	0-138	43	43
103.60	30°06'	118°25.5'	VI-24	0306	0321	487	0-138	74	74
103.65	29°56'	118°44.5'	VI-24	0551	0606	489	0-138	33	33
103.70	29°46'	119°05.5'	VI-24	0811	0826	480	0-140	17	17
103.75	29°37'	119°24'	VI-24	1031	1046	461	0-142	9	9
103.80	29°26.5'	119°43.8'	VI-24	1256	1310	457	0-138	20	20
103.85	29°17'	120°03.5'	VI-24	1516	1530	469	0-145	13	13
103.90	29°06'	120°23'	VI-24	1736	1750	438	0-138	18	18
107.32	30°25.8'	116°11'	VI-23	0436	0450	491	0-136	24	24
107.35	30°20'	116°23'	VI-23	0256	0311	455	0-145	40	40
107.40	30°10.5'	116°43.5'	VI-23	0046	0101	444	0-145	63	63
107.45	30°00'	117°03.5'	VI-22	2221	2236	493	0-138	87	87
107.50	29°50.5'	117°23.5'	VI-22	1956	2011	456	0-140	85	85
107.55	29°40.5'	117°39'	VI-22	1736	1750	470	0-142	34	34
107.60	29°31'	118°03'	VI-22	1441	1456	475	0-144	6	6
107.65	29°22'	118°21'	VI-22	1216	1230	489	0-144	8	8
107.70	29°11'	118°41'	VI-22	0956	1010	528	0-138	6	6
107.75	29°03'	119°03'	VI-22	0656	0710	503	0-138	14	14
107.80	28°53'	119°22'	VI-22	0441	0456	522	0-139	13	13
107.85	28°43'	119°39'	VI-22	0221	0236	498	0-143	12	12
107.90	28°32.5'	119°59'	VI-22	0001	0015	491	0-141	12	12
110.33	29°50.5'	115°52.2'	VI-20	1538	1546	295	0-74	112	112
110.35	29°46.5'	116°00'	VI-20	1636	1650	496	0-137	24	24
110.40	29°36.5'	116°19.5'	VI-20	1851	1906	481	0-140	21	21
110.45	29°26'	116°40'	VI-20	2056	2110	489	0-138	41	41
110.50	29°17'	116°57'	VI-20	2306	2321	505	0-135	40	40
110.55	29°07'	117°12'	VI-21	0111	0125	487	0-139	29	29
110.60	28°57'	117°27.5'	VI-21	0341	0355	525	0-138	17	17
110.65	28°39.5'	117°54.5'	VI-21	0740	0754	487	0-137	10	10
110.70	28°36.5'	118°18'	VI-21	0956	1010	549	0-137	20	20
110.75	28°27'	118°37'	VI-21	1216	1230	515	0-140	19	19
110.80	28°16.5'	118°56.5'	VI-21	1431	1446	503	0-138	14	14
110.85	28°07'	119°16'	VI-21	1651	1706	510	0-141	14	14
110.90	27°56.5'	119°36'	VI-21	1906	1920	485	0-141	8	8
113.30	29°25.5'	115°21'	VI-17	1123	1130	206	0-55	15	15
113.35	29°13.3'	115°40'	VI-17	0756	0810	475	0-131	25	25

Plankton volumes, Cruise 5906, June 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m³ strained: Total	Vol. per 1,000 m³ strained: Small organism
						m^3	m.	cc.	cc.
113.40	29°02'	115°58.5'	VI-17	0441	0456	501	0-141	52	52
113.45	28°50'	116°17'	VI-17	0136	0150	526	0-143	13	13
113.50	28°38'	116°37'	VI-16	2221	2236	516	0-134	25	25
113.55	28°27.5'	116°58'	VI-16	1911	1926	512	0-137	23	23
113.60	28°17'	117°21.5'	VI-16	1601	1616	510	0-138	16	16
113.65	28°09'	117°38.5'	VI-16	1211	1226	462	0-144	22	22
113.70	27°58'	117°59.5'	VI-16	0826	0840	539	0-134	19	19
113.75	27°50'	118°17'	VI-16	0536	0551	519	0-138	19	19
113.80	27°40.5'	118°35'	VI-16	0231	0246	496	0-143	28	28
113.85	27°32'	118°52'	VI-15	2326	2341	475	0-142	23	23
113.90	27°23'	119°09.5'	VI-15	2026	2041	491	0-143	18	18
117.26	28°56'	114°41'	VI-13	1328	1336	252	0-70	12	12
117.30	28°47'	114°57'	VI-13	1538	1547	322	0-85	62	62
117.35	28°38'	115°16'	VI-13	1836	1851	477	0-141	25	25
117.40	28°27.5'	115°36'	VI-13	2131	2146	453	0-143	57	57
117.45	28°17.5'	115°56'	VI-14	1336	1350	461	0-143	52	52
117.50	28°08'	116°16'	VI-14	1716	1731	518	0-134	31	31
117.55	27°58.5'	116°35'	VI-14	1956	2011	464	0-145	24	24
117.60	27°49'	116°54.5'	VI-14	2236	2251	480	0-144	25	25
117.65	27°39.5'	117°15'	VI-15	0126	0140	459	0-142	33	33
117.70	27°30'	117°34'	VI-15	0416	0431	459	0-142	46	46
117.75	27°20.5'	117°53'	VI-15	0701	0716	453	0-141	60	60
117.80	27°11.5'	118°13'	VI-15	0956	1011	468	0-140	56	56
117.85	27°02.5'	118°31'	VI-15	1231	1246	520	0-135	19	19
117.90	26°51'	118°49'	VI-15	1511	1526	484	0-143	14	14
118.39	28°18.5'	115°24'	VI-13	2326	2341	448	0-142	51	51
119.33	28°17.3'	114°52'	VI-13	0143	0152	360	0-98	145	145
120.25	28°23.2'	114°14.5'	VI-13	0803	0810	179	0-58	67	67
120.30	28°13.2'	114°34.2'	VI-13	0517	0526	321	0-90	1000	1000
120.35	28°03.2'	114°54.5'	VI-12	2323	2331	251	0-70	303	303
120.40	27°56.4'	115°14'	VI-12	0839	0843	140	0-29	94	94
120.45	27°38.5'	115°32.3'	VI-12	0406	0420	512	0-140	25	25
120.50	27°31.7'	115°51.8'	VI-12	0016	0031	500	0-142	44	44
120.55	27°23'	116°12'	VI-11	2101	2116	492	0-137	37	37
120.60	27°15.5'	116°28.8'	VI-11	1816	1831	500	0-138	26	26
120.65	27°04'	116°48.5'	VI-11	1526	1540	476	0-144	38	38
120.70	26°54.7'	117°07.8'	VI-11	1306	1321	482	0-144	29	29
120.75	26°45.5'	117°24.5'	VI-11	1041	1056	497	0-133	12	12
120.80	26°34.9'	117°45'	VI-11	0756	0810	472	0-141	17	17

Plankton volumes, Cruise 5906, June 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
120.85	26°24.5'	118°04.5'	VI-11	0426	0440	483	0-141	27	27
120.90	26°13'	118°23.8'	VI-11	0126	1041	474	0-145	27	27
123.37	27°24'	114°40'	VI-9	2003	2010	284	0-62	641	641
123.42	27°13.5'	115°00'	VI-9	2311	2326	468	0-139	101	101
123.45	27°06.8'	115°11.5'	VI-10	0111	0126	490	0-144	897	897
123.50	26°56'	115°31.5'	VI-10	0411	0426	495	0-142	79	79
123.55	26°46.5'	115°50'	VI-10	0656	0710	506	0-140	28	28
123.60	26°36'	116°10'	VI-10	0941	0956	537	0-131	26	26
123.65	26°26.5'	116°27'	VI-10	1206	1220	516	0-142	39	39
123.70	26°20'	116°48'	VI-10	1451	1505	496	0-143	44	44
127.34	26°55'	114°06'	VI-9	1148	1156	248	0-72	129	129
127.40	26°43'	114°29'	VI-9	0816	0830	490	0-132	24	24
127.45	26°33'	114°48.5'	VI-9	0526	0541	515	0-135	56	56
127.50	26°24'	115°07'	VI-9	0226	0241	494	0-142	34	34
127.55	26°14'	115°26'	VI-8	2316	2330	498	0-137	30	30
127.60	26°04.5'	115°45'	VI-8	2011	2025	504	0-133	32	32
127.65	25°53.5'	116°06'	VI-8	1701	1716	499	0-141	18	18
127.70	25°44'	116°26'	VI-8	1351	1406	506	0-143	47	47
130.30	26°28.6'	113°29'	VI-7	0828	0836	274	0-66	69	69
130.35	26°18.7'	113°46.8'	VI-7	1106	1120	503	0-135	20	20
130.40	26°08.1'	114°03.5'	VI-7	1431	1446	470	0-144	34	34
130.45	26°02.4'	114°21.3'	VI-7	1721	1736	498	0-140	48	48
130.50	25°52'	114°47'	VI-7	2041	2055	491	0-140	110	110
130.55	25°44'	115°05'	VI-7	2341	2355	503	0-134	80	80
130.60	25°31.5'	115°24'	VI-8	0226	0240	471	0-140	72	72
130.65	25°21.5'	115°43'	VI-8	0506	0520	500	0-141	44	44
130.70	25°11'	116°02.5'	VI-8	0746	0801	481	0-139	303	303
133.25	26°01.6'	112°44.5'	VI-7	0148	0156	267	0-70	715	715
133.30	25°52'	113°06'	VI-6	2256	2310	505	0-140	53	53
133.35	25°44.4'	113°26.6'	VI-6	2001	2015	514	0-133	39	39
133.40	25°33.2'	113°47.5'	VI-6	1416	1430	503	0-142	4	4
133.45	25°25.5'	114°00'	VI-6	1136	1150	509	0-136	4	4
133.50	25°14.5'	114°20.5'	VI-6	0856	0910	507	0-138	2	2
134.36	25°38'	113°24.6'	VI-6	1756	1811	507	0-138	189	189
137.23	25°34'	112°19'	VI-5	1203	1210	262	0-71	381	381
137.30	25°20.3'	112°44.7'	VI-5	1536	1551	497	0-141	8	8
137.35	25°10'	113°03'	VI-5	1811	1825	500	0-140	28	28
137.40	25°00'	113°22'	VI-5	2146	2200	471	0-141	59	59
137.45	24°50'	113°41'	VI-6	0036	0051	488	0-143	147	147
137.50	24°40'	114°00'	VI-6	0321	0336	488	0-144	61	61

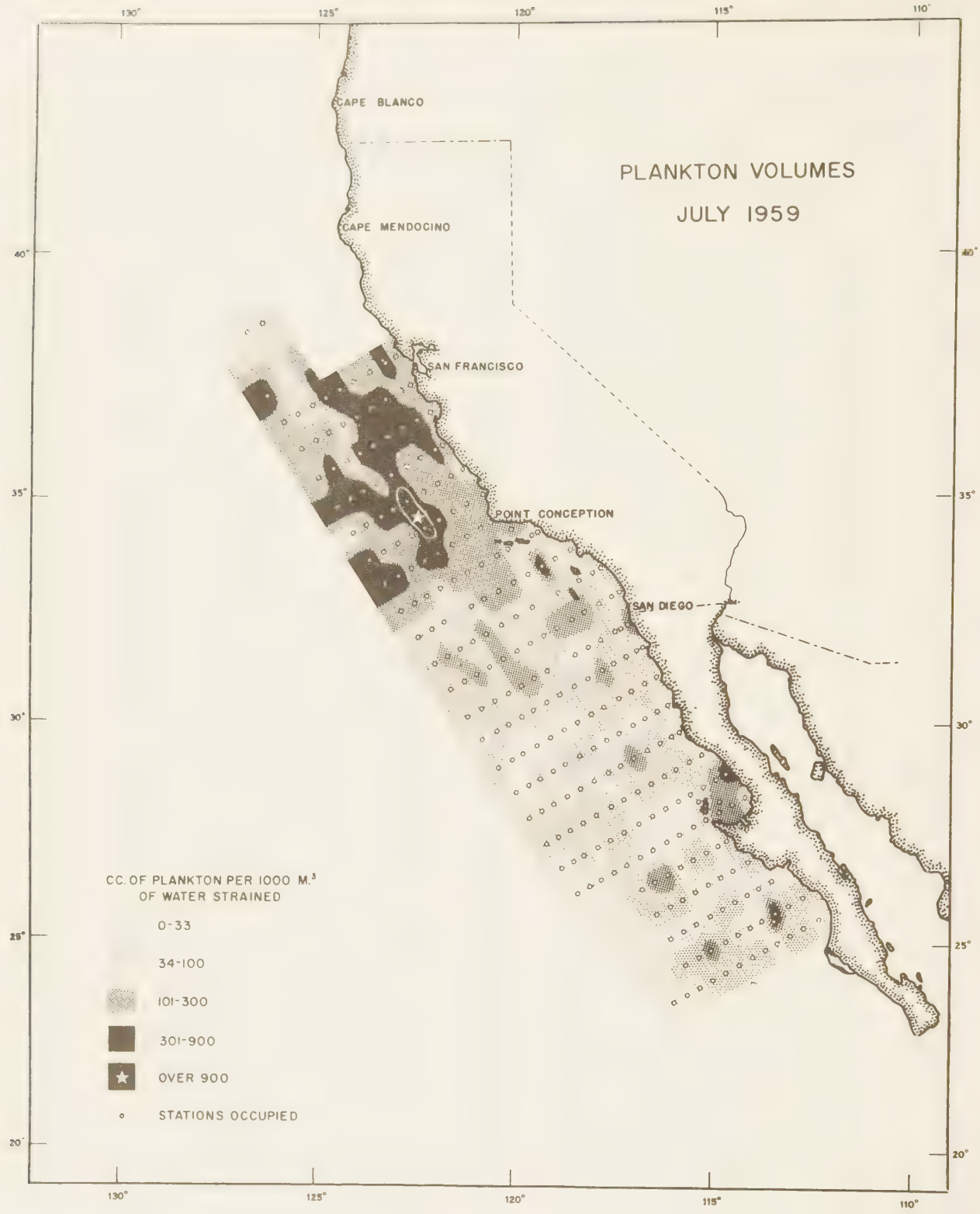

Figure 10.--Plankton volumes, July 1959.

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
50.80	38°42.6'	126°19.3'	VII-26	1636	1650	483	0-140	37	37
50.85	38°23.4'	126°49'	VII-26	1131	1145	494	0-138	14	14
57.90	37°09'	126°04'	VII-25	1331	1346	449	0-139	816	816
60.52	37°52.9'	122°58.3'	VII-23	2128	2135	257	0-73	725	265
60.55	37°47.3'	123°13.3'	VII-23	2343	2350	282	0-68	658	453
60.60	37°36.5'	123°35.4'	VII-24	0316	0331	482	0-142	243	243
60.65	37°24.9'	123°58.5'	VII-24	0626	0641	481	0-145	233	212
60.70	37°13.3'	124°22.7'	VII-24	0956	1010	492	0-140	301	301
60.75	37°01.8'	124°45'	VII-24	1241	1256	484	0-138	853	853
60.80	36°54.2'	125°00'	VII-24	1541	1555	507	0-142	83	83
60.85	36°45.1'	125°18.5'	VII-24	1816	1831	469	0-140	85	85
60.90	36°35'	125°37.5'	VII-25	0236	0250	512	0-127	108	108
63.52	37°14.6'	122°36.4'	VII-22	0747	0756	218	0-71	129	129
63.55	37°10'	122°47'	VII-22	0556	0611	408	0-144	272	272
63.60	37°00'	123°10.2'	VII-22	0306	0320	424	0-141	406	406
63.65	36°50.8'	123°31.1'	VII-22	0011	0026	420	0-140	466	466
63.70	36°41.9'	123°50.8'	VII-21	2141	2156	427	0-142	578	555
63.75	36°30.4'	124°09.5'	VII-21	1855	1910	440	0-140	50	50
63.80	36°19.5'	124°27.2'	VII-21	1641	1656	426	0-139	113	113
63.85	36°09'	124°48.4'	VII-21	1446	1500	419	0-141	255	255
63.90	35°57.3'	125°08'	VII-21	1126	1140	380	0-143	147	147
67.50	36°50.3'	122°07.2'	VII-20	0555	0603	233	0-69	113	113
67.55	36°41.1'	122°30.7'	VII-20	0901	0916	456	0-140	643	307
67.60	36°31.9'	122°53.5'	VII-20	1211	1225	426	0-142	321	321
67.65	36°21.3'	123°15.7'	VII-20	1451	1506	369	0-140	669	669
67.70	36°12.7'	123°33.8'	VII-20	1806	1821	412	0-144	424	400
67.75	36°01.3'	123°52'	VII-20	2056	2111	430	0-141	314	314
67.80	35°48.8'	124°11'	VII-21	0001	0015	424	0-142	57	57
67.85	35°36.3'	124°30'	VII-21	0241	0256	419	0-143	935	470
67.90	35°24'	124°48.8'	VII-21	0541	0556	365	0-143	222	222
70.52	36°07.6'	121°49.5'	VII-19	2341	2356	431	0-143	165	165
70.55	36°02.6'	122°02.6'	VII-19	2113	2128	458	0-138	480	480
70.60	35°52.3'	122°22'	VII-19	1831	1846	427	0-144	290	290
70.65	35°41'	122°42.3'	VII-19	1446	1501	452	0-140	226	226
70.70	35°29.9'	123°04'	VII-19	1211	1226	444	0-140	308	308
70.75	35°20'	123°24.5'	VII-19	0836	0850	446	0-139	256	256
70.80	35°09.4'	123°46.6'	VII-19	0611	0625	415	0-141	441	441
70.85	34°59.5'	124°07.5'	VII-19	0234	0249	416	0-143	418	418
70.90	34°53.7'	124°29.5'	VII-18	2234	2248	446	0-140	432	432

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
73.51	35°34.7'	121°21.4'	VII-17	1001	1015	458	0-137	35	35
73.55	35°28.3'	121°35.5'	VII-17	1241	1255	444	0-138	131	131
73.60	35°17'	121°56.9'	VII-17	1536	1551	471	0-142	265	238
73.65	35°06'	122°18.3'	VII-17	1836	1851	459	0-141	194	194
73.70	34°54.6'	122°39.3'	VII-17	2136	2151	433	0-141	1024	1024
73.75	34°43'	123°01.2'	VII-18	0036	0051	451	0-138	790	790
73.80	34°31.8'	123°22.9'	VII-18	0357	0412	433	0-142	527	527
73.85	34°19.8'	123°45'	VII-18	0656	0710	403	0-142	146	146
73.90	34°08.8'	124°07'	VII-18	1001	1016	438	0-142	98	98
77.50	35°05'	120°52.5'	VII-17	0516	0531	460	0-128	187	187
77.55	34°49.5'	121°13'	VII-17	0206	0221	426	0-143	230	230
77.60	34°41.5'	121°34'	VII-16	2241	2256	458	0-135	205	205
77.65	34°31.5'	121°54.5'	VII-16	1921	1936	436	0-143	378	378
77.70	34°24'	122°16.5'	VII-16	1631	1646	462	0-142	1624	1624
77.75	34°12.2'	122°36'	VII-16	1311	1326	463	0-137	259	229
77.80	33°59.8'	122°57.1'	VII-16	1031	1046	544	0-125	195	195
77.85	33°50'	123°17.5'	VII-16	0706	0720	443	0-141	176	176
77.90	33°40'	123°39'	VII-16	0411	0426	419	0-146	556	556
80.52	34°25'	120°35.5'	VII-11	2123	2138	411	0-140	185	185
80.55	34°18.7'	120°47.5'	VII-11&12	2356	0011	440	0-140	191	191
80.60	34°08.3'	121°09.3'	VII-12	0336	0350	400	0-140	202	202
80.65	33°58.5'	121°32'	VII-12	0626	0640	423	0-139	300	300
80.70	33°49.9'	121°55.1'	VII-12	0936	0950	452	0-131	478	478
80.75	33°37.5'	122°11.1'	VII-15	1036	1051	476	0-132	348	348
80.80	33°29'	122°32.5'	VII-15	1326	1330	454	0-139	183	154
80.85	33°19'	122°54.2'	VII-15	1556	1611	460	0-144	511	511
80.90	33°10.2'	123°15.1'	VII-15	2136	2150	470	0-129	652	652
82.47	34°15'	118°58'	VII-10	1636	1651	485	0-132	109	109
83.40	34°14'	119°22'	VII-11	0805	0807	72	0-12	41	41
83.43	34°08'	119°34'	VII-11	1006	1021	547	0-137	38	38
83.51	33°52'	120°08'	VII-11	1557	1607	412	0-92	44	44
83.55	33°44'	120°24.5'	VII-11	1916	1931	511	0-131	155	155
83.60	33°34'	120°45'	VII-11	2256	2310	528	0-130	168	168
83.65	33°24'	121°05.5'	VII-12	0206	0220	500	0-142	136	136
83.70	33°14'	121°26'	VII-12	0536	0550	530	0-126	270	270
83.75	33°03.5'	121°46'	VII-12	0826	0841	482	0-141	75	75
83.80	32°57'	122°06'	VII-12	1156	1211	517	0-130	248	248
83.85	32°44'	122°26'	VII-12	1451	1505	472	0-145	104	104
83.90	32°34'	122°48'	VII-12	1916	1931	533	0-135	143	143

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
87.35	33°50'	118°36.5'	VII-14	1806	1920	460	0-142	70	70
87.40	33°40.5'	118°57'	VII-14	1406	1420	516	0-138	12	12
87.45	33°30'	119°19'	VII-14	1116	1130	502	0-129	420	420
87.50	33°20.2'	119°39.5'	VII-14	0803	0810	247	0-62	21	21
87.55	33°05'	119°59'	VII-14	0356	0411	458	0-146	148	148
87.60	32°56'	120°20.5'	VII-13	2306	2320	(443)	0-135	(129)	(129)
87.65	32°46.5'	120°40'	VII-13	2016	2030	(454)	0-143	(214)	(214)
87.70	32°37.7'	121°01.5'	VII-13	1626	1641	559	0-125	72	72
87.75			Net assembly lost.						
87.80	32°18'	121°42.5'	VII-13	0806	0820	465	0-147	47	47
87.85	32°09'	122°02.5'	VII-13	0431	0446	505	0-139	93	93
87.90	31°59.5'	122°23'	VII-13	0116	0131	493	0-135	93	93
90.28	33°28.5'	117°46.7'	VII-24	0656	0711	438	0-125	48	48
90.32	33°20.5'	118°02'	VII-24	0421	0436	480	0-137	31	31
90.37	33°11'	118°23.5'	VII-24	0046	0101	(469)	0-138	(75)	(75)
90.45	32°53.5'	118°55.4'	VII-23	1906	1921	476	0-132	84	84
90.50			Sample spoiled.						
90.55	32°35'	119°37'	VII-23	1311	1326	509	0-124	82	82
90.60	32°25.5'	119°57.6'	VII-23	0931	0946	452	0-140	93	93
90.65	32°16'	120°18.5'	VII-23	0606	0620	436	0-137	71	71
90.70	32°06'	120°40'	VII-23	0321	0336	477	0-145	138	138
90.75	31°57'	121°00'	VII-22	2331	2346	390	0-144	38	38
90.80	31°47.1'	121°21.3'	VII-22	2041	2056	419	0-140	91	91
90.85	31°37.5'	121°41.4'	VII-22	1726	1740	(458)	0-136	(118)	(118)
90.90	31°32'	121°53'	VII-22	1316	1331	458	0-133	48	48
93.28	32°55'	117°22'	VII-20	1306	1321	440	0-148	43	43
93.30	32°50.1'	117°32'	VII-20	1506	1521	452	0-142	13	13
93.35	32°40'	117°52'	VII-20	1751	1805	439	0-145	46	46
93.40	32°29.5'	118°12'	VII-20	2106	2120	498	0-124	253	253
93.45	32°20.5'	118°33'	VII-21	0016	0031	479	0-136	117	117
93.50	32°12.5'	118°54'	VII-21	0416	0431	469	0-134	130	130
93.55	32°03'	119°15'	VII-21	0806	0821	480	0-126	46	46
93.60	31°52.5'	119°37.5'	VII-21	1106	1121	459	0-129	76	76
93.65	31°43.5'	119°56'	VII-21	1416	1431	458	0-130	83	83
93.70	31°32'	120°15.5'	VII-21	1746	1800	492	0-140	122	122
93.75	31°22'	120°36'	VII-21	2021	2036	486	0-132	72	72
93.80	31°11'	120°56'	VII-21	2306	2321	415	0-143	104	104
93.85	31°01.5'	121°15.5'	VII-22	0216	0230	458	0-135	81	81
93.90	30°51'	121°33'	VII-22	0601	0616	440	0-137	55	55

Plankton volumes. Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m³ strained: Total	Vol. per 1,000 m³ strained: Small organism
						m³	M.	cc.	cc.
97.30	32°15.5'	117°08.5'	VII-20	0654	0658	173	0-87	150	150
97.32	32°11.5'	117°16'	VII-20	0506	0520	483	0-133	29	29
97.35	32°03'	117°29'	VII-20	0226	0241	390	0-145	77	77
97.40	31°52.5'	117°49.5'	VII-19	2246	2300	491	0-117	53	53
97.45	31°39'	118°10'	VII-19	1931	1946	446	0-129	27	27
97.50	31°26'	118°30'	VII-19	1656	1710	493	0-132	20	20
97.55			Occupied. Sample not quantitative.						
97.60	31°05'	119°03.5'	VII-19	0956	1011	486	0-138	86	86
97.65	30°56'	119°24.5'	VII-19	0636	0651	468	0-138	121	121
97.70	30°48'	119°45'	VII-19	0401	0416	448	0-140	116	116
97.75	30°40'	120°08'	VII-19	0006	0021	481	0-138	75	75
97.80	30°32'	120°28.5'	VII-18	2121	2136	463	0-130	35	35
97.85	30°23'	120°50.5'	VII-18	1806	1821	472	0-142	40	40
97.90	30°16'	121°07'	VII-18	1506	1521	507	0-139	34	34
100.29	31°42.2'	116°43.4'	VII-16	1626	1640	473	0-130	49	49
100.30	31°40.8'	116°46.3'	VII-16	1706	1721	475	0-144	51	51
100.35	31°31'	117°06.8'	VII-16	2026	2041	401	0-151	40	40
100.40	31°21'	117°26.8'	VII-17	0021	0036	441	0-143	77	77
100.45	31°06'	117°50'	VII-17	0316	0331	493	0-136	109	109
100.50	30°54.5'	118°12.5'	VII-17	0626	0641	495	0-140	40	40
100.55	30°46'	118°29'	VII-17	0926	0940	522	0-130	75	75
100.60	30°36.2'	118°49.5'	VII-17	1251	1306	476	0-138	42	42
100.65	30°28'	119°06.5'	VII-17	1516	1530	472	0-141	76	76
100.70	30°17.5'	119°25'	VII-17	1806	1820	444	0-145	95	95
100.75	30°07.5'	119°44'	VII-17	2106	2121	441	0-143	70	70
100.80	29°56.5'	120°03'	VII-18	0031	0046	466	0-143	51	51
100.85	29°45.5'	120°22'	VII-18	0306	0321	489	0-145	55	55
100.90	29°36'	120°40'	VII-18	0606	0621	441	0-145	14	14
103.30	31°05.2'	116°25'	VIII-1	0859	0904	204	0-47	98	98
103.35	30°57'	116°46'	VIII-1	0551	0606	496	0-142	54	54
103.40	30°48'	117°06'	VIII-1	0210	0225	485	0-141	52	52
103.45	30°39'	117°26.5'	VII-31	2326	2341	485	0-140	84	84
103.50	30°29'	117°46.5'	VII-31	2026	2040	483	0-142	39	39
103.55	30°20'	118°04'	VII-31	1816	1831	513	0-146	39	39
103.60	30°06'	118°25.5'	VII-31	1500	1514	493	0-143	18	18
103.65	29°54'	118°46'	VII-31	1216	1230	523	0-140	19	19
103.70	29°46'	119°05.5	VII-31	0916	0930	504	0-138	16	16
103.75	29°37'	119°24.5'	VII-31	0651	0706	504	0-143	24	24
103.80	29°26.5'	119°45.5'	VII-31	0341	0356	488	0-138	18	18

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
103.85	29°17'	120°03.5'	VII-31	0106	0120	494	0-139	30	30
103.90	29°06'	120°25'	VII-30	2202	2216	506	0-137	34	34
107.32	30°25.8'	116°11'	VII-27	1956	2011	498	0-141	26	26
107.35	30°20'	116°23'	VII-27	1806	1821	500	0-142	36	36
107.40	30°10'	116°43.5'	VII-27	1500	1515	493	0-136	28	28
107.45	30°00'	117°03.3'	VII-27	1201	1216	531	0-138	24	24
107.50	29°50.5'	117°23.5'	VII-27	0831	0846	513	0-137	39	39
107.55	29°40.3'	117°43'	VII-27	0546	0601	508	0-133	26	26
107.60	29°31'	118°03'	VII-27	0216	0231	481	0-143	73	73
107.65	29°21'	118°23'	VII-27	0001	0016	480	0-140	58	58
107.70	29°11'	118°43'	VII-26	2106	2121	510	0-141	39	39
107.75	29°01.5'	119°03.5'	VII-26	1826	1840	515	0-142	21	21
107.80	28°51.5'	119°22.5'	VII-26	1516	1530	500	0-138	42	42
107.85	28°41'	119°42'	VII-26	1251	1306	523	0-139	21	21
107.90	28°32.5'	120°01.5'	VII-26	0936	0951	505	0-140	28	28
110.33	29°50.5'	115°52.2'	VII-24	1358	1406	273	0-75	29	29
110.35	29°46.5'	116°00'	VII-24	1501	1516	477	0-140	17	17
110.40	29°36.5'	116°19.5'	VII-24	1751	1805	492	0-139	37	37
110.45	29°27'	116°39'	VII-24	2026	2040	518	0-133	56	56
110.50	29°18'	116°58.5'	VII-24	2246	2300	528	0-134	174	174
110.55	29°09'	117°18.5'	VII-25	0136	0151	528	0-136	64	64
110.60	28°59'	117°38'	VII-25	0404	0418	511	0-140	39	39
110.65	28°46'	117°58'	VII-25	0721	0736	546	0-132	26	26
110.70	28°36.5'	118°18'	VII-25	1626	1640	526	0-138	34	34
110.75	28°26'	118°38'	VII-25	1905	1920	502	0-139	28	28
110.80	28°18'	118°57'	VII-25	2120	2134	510	0-140	47	47
110.85	28°09'	119°16'	VII-26	0006	0020	529	0-137	51	51
110.90	28°01'	119°36'	VII-26	0216	0231	544	0-130	57	57
113.30	29°22.5'	115°17.5'	VII-24	0454	0459	229	0-40	13	13
113.35	29°12'	115°39'	VII-24	0101	0116	496	0-136	56	56
113.40	29°02'	115°58.5'	VII-23	2154	2208	468	0-138	49	49
113.45	28°52'	116°18'	VII-23	1921	1935	(497)	0-141	(34)	(34)
113.50	28°42'	116°37.5'	VII-23	1621	1635	524	0-144	34	34
113.55	28°32'	116°57'	VII-23	1356	1410	476	0-141	38	38
113.60	28°28'	117°17'	VII-23	1106	1120	469	0-141	21	21
113.65	28°18'	117°35.5'	VII-23	0836	0850	469	0-141	36	36
113.70	28°06.5'	117°56'	VII-23	0531	0545	466	0-142	34	34
113.75	27°55'	118°16'	VII-23	0235	0250	453	0-143	44	44
113.80	27°44'	118°35'	VII-22	2331	2345	473	0-141	49	49

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
113.85	27°33'	118°55'	VII-22	2106	2120	478	0-143	38	38
113.90	27°23'	119°14'	VII-22	1801	1815	482	0-142	48	48
117.26	28°56'	114°41'	VII-20	2323	2330	240	0-58	428	428
117.30	28°48'	114°56.5'	VII-21	0108	0115	255	0-64	118	118
117.35	28°38'	115°16'	VII-21	0341	0356	502	0-134	66	66
117.40	28°28'	115°35.5'	VII-21	0608	0623	473	0-136	19	19
117.45	28°18'	115°55.2'	VII-21	1436	1451	503	0-140	16	16
117.50	28°08'	116°15'	VII-21	1641	1656	514	0-138	12	12
117.53	27°57.7'	116°34.5'	VII-21	1956	2010	500	0-136	14	14
117.60	27°47.5'	116°54'	VII-21	2156	2211	489	0-138	31	31
117.65	27°37.5'	117°13'	VII-22	0046	0101	482	0-138	41	41
117.70	27°27.5'	117°32.5'	VII-22	0255	0310	466	0-140	73	73
117.75	27°17'	117°53'	VII-22	0545	0601	575	0-134	33	33
117.80	27°07'	118°12'	VII-22	0751	0806	477	0-138	54	54
117.85	26°59'	118°30'	VII-22	1046	1101	(504)	0-137	(28)	(28)
117.90	26°50'	118°51.5'	VII-22	1327	1342	527	0-135	30	30
118.39	28°18.5'	115°24'	VII-21	0826	0841	474	0-137	19	19
119.33	28°19'	114°53'	VII-20	0131	0143	(402)	0-103	(139)	(139)
120.25	28°23'	114°14.5'	VII-20	1829	1834	202	0-48	94	94
120.30	28°13'	114°34'	VII-20	1546	1554	296	0-77	101	101
120.35	28°03'	114°54'	VII-19	2248	2255	249	0-67	145	145
120.40	27°56.5'	115°14'	VII-19	1959	2002	122	0-23	41	41
120.45	27°43'	115°33'	VII-19	1646	1701	456	0-143	7	7
120.50	27°33'	115°52.5'	VII-19	1336	1350	494	0-138	20	20
120.55	27°23'	116°12'	VII-19	1056	1110	482	0-138	12	12
120.60	27°09.5'	116°37.3'	VII-19	0706	0721	472	0-142	13	13
120.65	27°00.5'	116°56'	VII-19	0356	0410	471	0-141	25	25
120.70	26°51'	117°13.5'	VII-19	0056	0110	465	0-140	71	71
120.75	26°41.5'	117°31.3'	VII-18	2216	2230	460	0-143	44	44
120.80	26°32'	117°49.5'	VII-18	1916	1931	486	0-138	31	31
120.85	26°22.5'	118°08'	VII-18	1646	1701	538	0-138	20	20
120.90	26°13'	118°27.5'	VII-18	1131	1146	509	0-136	22	22
123.37	27°24'	114°39.7'	VII-16	2253	2300	286	0-56	42	42
123.42	27°14'	114°59'	VII-17	0946	1001	506	0-138	10	10
123.45	27°08'	115°11'	VII-17	1156	1210	472	0-144	42	42
123.50	27°01.5'	115°31'	VII-17	1416	1431	508	0-140	43	43
123.55	26°54'	115°49'	VII-17	1651	1706	526	0-134	29	29
123.60	26°38.5'	116°09'	VII-17	1946	2000	520	0-137	135	135
123.65	26°29'	116°28'	VII-17	2246	2300	505	0-137	111	111

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
123.70	26°18.5'	116°47'	VII-18	0111	0126	502	0-137	58	58
127.34	26°55.3'	114°06'	VII-16	1715	1723	281	0-70	50	50
127.40	26°43.5'	114°29.5'	VII-16	1401	1416	518	0-142	4	4
127.45	26°35.7'	114°48.5'	VII-16	1116	1130	507	0-142	22	22
127.50	26°25.5'	115°08'	VII-16	0816	0830	514	0-143	23	23
127.55	26°15'	115°27'	VII-16	0546	0601	502	0-142	30	30
127.60	26°04'	115°46.5'	VII-16	0246	0301	502	0-146	60	60
127.65	25°54.5'	116°05.5'	VII-16	0011	0026	(490)	0-143	(41)	(41)
127.70	25°44'	116°24.5'	VII-15	2101	2115	538	0-141	52	52
130.30	26°29'	113°29'	VII-14	1443	1449	(210)	0-55	(10)	(10)
130.35	26°19'	113°48.5'	VII-14	1726	1740	447	0-141	7	7
130.40	26°09'	114°07.5'	VII-14	2011	2025	449	0-143	16	16
130.45	25°59.2'	114°26'	VII-14	2331	2345	503	0-141	38	38
130.50	25°49'	114°46'	VII-15	0205	0220	513	0-137	62	62
130.55	25°40'	115°03'	VII-15	0501	0516	491	0-142	8	8
130.60	25°28'	115°27'	VII-15	0726	0740	518	0-140	23	23
130.65	25°19'	115°42'	VII-15	1326	1341	514	0-147	17	17
130.70	25°08.5'	116°02'	VII-15	1556	1610	539	0-137	19	19
133.25	26°04.5'	112°48'	VII-14	0928	0936	280	0-64	61	61
133.30	25°54.5'	113°07.5'	VII-14	0631	0646	434	0-140	65	65
133.35	25°44.5'	113°26.5'	VII-14	0006	0021	490	0-140	490	490
133.40	25°34.5'	113°45.5'	VII-13	1846	1900	467	0-144	26	26
133.45	25°28'	114°05'	VII-13	1606	1621	446	0-153	25	25
133.50	25°14.3'	114°24'	VII-13	1231	1245	455	0-143	15	15
133.55	25°02'	114°41'	VII-13	0926	0941	465	0-144	43	43
133.60	24°53'	115°01'	VII-13	0601	0615	479	0-142	267	267
133.65	24°44'	115°19'	VII-13	0341	0356	515	0-140	47	47
133.70	24°34.5'	115°39'	VII-13	0031	0046	491	0-139	47	47
134.36	25°39.2'	113°25'	VII-13	2256	2309	399	0-119	381	381
137.23	25°34.2'	112°18.7'	VII-11	0318	0326	262	0-65	23	23
137.30	25°20'	112°45.5'	VII-11	0631	0646	519	0-132	56	56
137.35	25°10'	113°04.5'	VII-11	1345	1400	528	0-128	76	76
137.40	25°00'	113°23.5'	VII-11	1630	1645	538	0-138	13	13
137.45	24°50'	113°42.6'	VII-11	2011	2026	491	0-139	67	67
137.50	24°41'	113°57.5'	VII-11	2216	2230	484	0-138	62	62
137.55	24°32.5'	114°13.5'	VII-12	0206	0221	518	0-131	50	50
137.60	24°23'	114°29'	VII-12	0411	0426	516	0-136	54	54
137.65	24°10'	114°58.5'	VII-12	0836	0851	505	0-139	48	48
137.70	24°00'	115°17.5'	VII-12	1100	1116	512	0-139	29	29

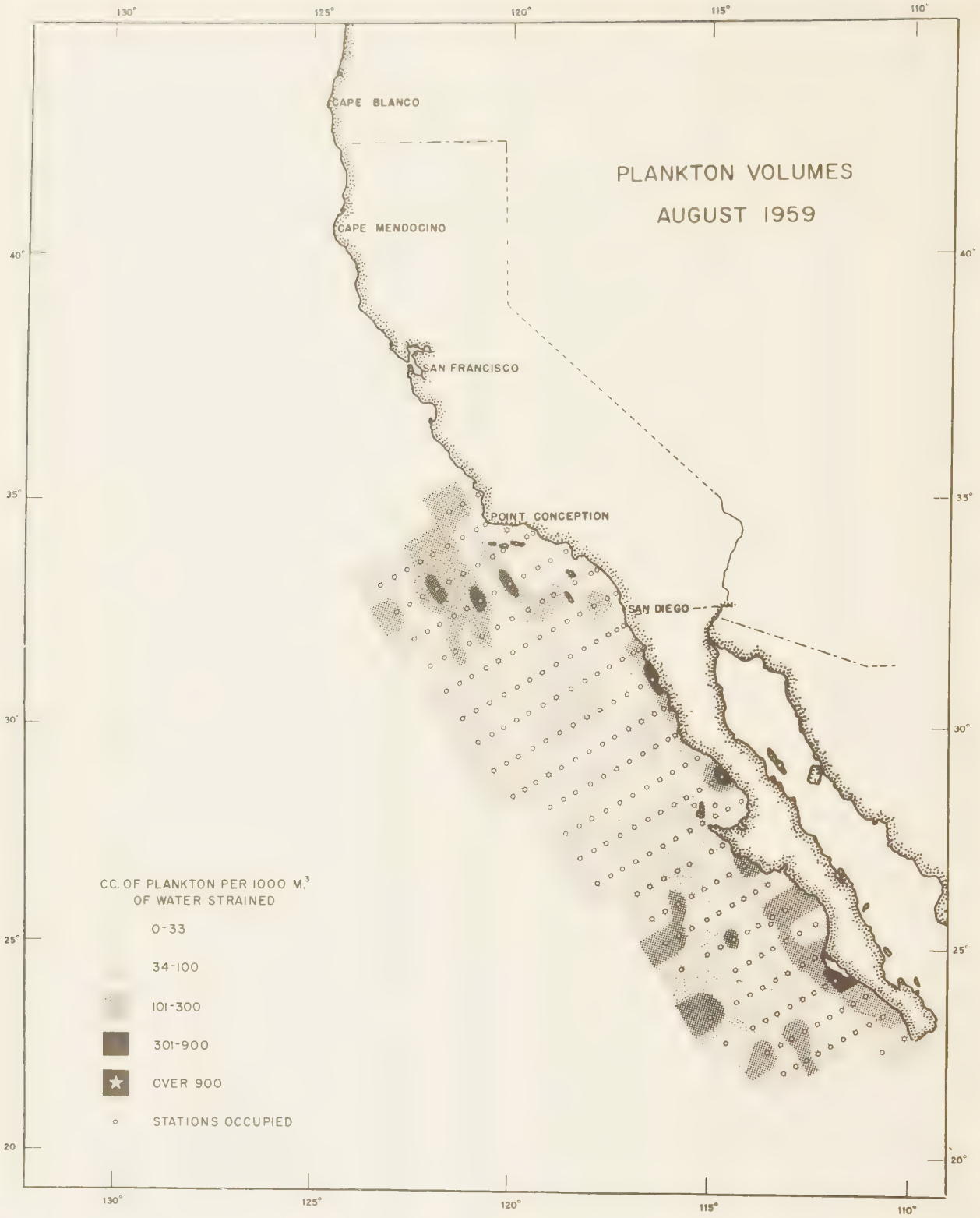

Figure 11.--Plankton volumes, August 1959.

Plankton volumes, Cruise 5907, July 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
137.75	23°48'	115°37'	VII-12	1356	1410	492	0-140	22	22
137.80	23°35'	115°59.5'	VII-12	1641	1656	524	0-141	31	31
			Plankton Volumes, Cruise 5908, August 1959						
77.50	35°04.5'	120°52.5'	VIII-15	0356	0410	455	0-137	92	92
77.55	34°52'	121°16.8'	VIII-15	0046	0100	450	0-144	300	273
77.60	34°43.5'	121°35'	VIII-14	2131	2146	497	0-126	352	292
80.52	34°25'	120°36'	VIII-15	0946	1000	535	0-118	26	26
80.55	34°21.5'	120°49'	VIII-15	1211	1225	484	0-134	41	41
80.60	34°11'	121°11'	VIII-15	1541	1555	440	0-142	77	77
80.65	34°02'	121°32.5'	VIII-15	1826	1840	452	0-139	432	193
80.70	33°51'	121°54'	VIII-15	2136	2151	492	0-123	203	203
80.75	33°40'	122°14'	VIII-16	0031	0045	425	0-144	299	299
80.80	33°29'	122°35'	VIII-16	0421	0435	448	0-135	60	60
80.85	33°17'	122°56'	VIII-16	0711	0725	428	0-141	75	75
80.90	33°05'	123°17'	VIII-16	1016	1031	512	0-121	55	55
82.47	34°14'	119°58'	VIII-17	1556	1610	448	0-141	40	40
83.40	34°14'	119°23'	VIII-17	2144	2147	106	0-20	76	76
83.43	34°07.5'	119°33.5'	VIII-17	1946	2001	430	0-138	84	84
83.51	33°52'	120°07.5'	VIII-17	1237	1248	326	0-100	301	55
83.55	33°41.5'	120°20'	VIII-17	1041	1056	514	0-124	103	103
83.60	33°34'	120°32'	VIII-17	0821	0836	538	0-115	58	58
83.65	33°24'	120°54'	VIII-17	0516	0530	460	0-139	291	291
83.70	33°14'	121°16'	VIII-17	0236	0250	448	0-144	194	194
83.75	33°04'	121°40'	VIII-16	2341	2356	455	0-137	444	396
83.80	32°54'	122°02'	VIII-16	2101	2116	523	0-122	214	180
83.85	32°44'	122°24'	VIII-16	1756	1810	460	0-140	17	17
83.90	32°34'	122°49'	VIII-16	1526	1540	465	0-142	206	206
87.35	33°49'	118°38'	VIII-18	0301	0315	437	0-144	32	32
87.40	33°41'	118°59.5'	VIII-18	0551	0605	405	0-140	17	17
87.45	33°31.5'	119°20.5'	VIII-18	0856	0910	467	0-127	13	13
87.50	33°19.5'	119°39'	VIII-18	1128	1136	284	0-70	11	11
87.55	33°08'	120°02'	VIII-18	1431	1446	439	0-140	660	660
87.60	32°58'	120°21'	VIII-18	1736	1750	457	0-132	90	90
87.65	32°46'	120°42.5'	VIII-18	2036	2050	491	0-128	432	432
87.70	32°34'	121°03'	VIII-18	2346	2400	444	0-143	153	153
87.75	32°22'	121°23.5'	VIII-19	0226	0240	433	0-143	118	118

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
87.80	32°10'	121°44.5'	VIII-19	0541	0556	442	0-142	95	95
87.85	31°59'	122°05'	VIII-19	0826	0841	483	0-129	87	87
87.90	31°50.5'	122°20'	VIII-19	1101	1116	493	0-132	55	55
90.28	33°27.5'	117°46'	VIII-22	1151	1206	453	0-141	40	40
90.32	33°20.5'	118°03'	VIII-21	0746	0800	473	0-132	11	11
90.37	33°10.5'	118°24'	VIII-21	0436	0450	434	0-141	62	62
90.45	32°54.5'	118°56.5'	VIII-21	0011	0026	422	0-149	256	256
90.50	32°45.5'	119°16'	VIII-20	2036	2051	490	0-135	281	281
90.55	32°31.5'	119°33.5'	VIII-20	1716	1731	464	0-140	235	235
90.60	32°17'	119°53'	VIII-20	1316	1330	464	0-144	22	22
90.65	32°09'	120°17.5'	VIII-20	1006	1021	522	0-128	100	100
90.70	31°58.5'	120°47'	VIII-20	0631	0646	472	0-142	138	138
90.75	31°47.5'	121°04'	VIII-20	0329	0343	470	0-148	57	57
90.80	31°39'	121°21'	VIII-20	0056	0110	454	0-146	106	106
90.85	31°30'	121°36.5'	VIII-19	2206	2221	500	0-130	64	64
90.90	31°24'	121°57'	VIII-19	1506	1520	469	0-142	30	30
93.28	32°55'	117°21.5'	VIII-22	1711	1726	460	0-134	17	17
93.30	32°50.5'	117°32'	VIII-24	1331	1345	472	0-145	195	195
93.35	32°40'	117°52'	VIII-24	1616	1630	485	0-138	115	115
93.40	32°30'	118°12.5'	VIII-24	1926	1941	491	0-136	61	61
93.45	32°20'	118°33.5'	VIII-24	2201	2216	510	0-134	84	84
93.50	32°08.5'	118°55'	VIII-25	0111	0125	477	0-141	59	59
93.55	31°58'	119°17'	VIII-25	0341	0355	464	0-140	60	60
93.60	31°48'	119°37'	VIII-25	0726	0740	463	0-141	60	47
93.65	31°38'	119°59'	VIII-25	1001	1016	480	0-139	21	21
93.70	31°27'	120°21'	VIII-25	1311	1325	451	0-148	35	35
93.75	31°20'	120°35'	VIII-25	1526	1540	466	0-145	34	34
93.80	31°10.5'	120°55'	VIII-25	1811	1825	469	0-141	68	68
93.85	31°00.5'	121°15'	VIII-25	2044	2059	456	0-140	61	61
93.90	30°50'	121°35'	VIII-26	0001	0016	457	0-147	70	57
97.30	32°15'	117°06.5'	VIII-27	1758	1805	246	0-68	41	41
97.32	32°11.5'	117°16.5'	VIII-27	1616	1630	473	0-138	27	27
97.35	32°07'	117°25'	VIII-27	1406	1420	470	0-138	53	53
97.40	32°00'	117°40'	VIII-27	1216	1230	462	0-144	15	15
97.45	31°49.5'	118°02'	VIII-27	0901	0916	493	0-152	26	26
97.50	31°40'	118°23'	VIII-27	0611	0625	444	0-141	32	32
97.55	31°28'	118°43'	VIII-27	0251	0305	464	0-141	65	65
97.60	31°18'	119°06'	VIII-27	0003	0017	463	0-149	95	95
97.65	31°07'	119°27'	VIII-26	2036	2051	477	0-138	75	75

Plankton volumes, Cruise 5908, August 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
97.70	30°56'	119°48'	VIII-26	1751	1806	486	0-139	41	29
97.75	30°45.5'	120°09.5'	VIII-26	1436	1450	435	0-148	35	35
97.80	30°35'	120°30'	VIII-26	1151	1206	453	0-147	60	60
97.85	30°25'	120°49.5'	VIII-26	0836	0851	464	0-141	43	43
97.90	30°16'	121°11'	VIII-26	0511	0526	468	0-141	47	47
100.29	31°41.5'	116°43'	VIII-28	0141	0155	470	0-138	128	128
100.30	31°40.5'	116°46.5'	VIII-28	0301	0316	470	0-137	119	119
100.35	31°30.5'	117°05'	VIII-28	1016	1030	478	0-136	65	65
100.40	31°19.5'	117°23'	VIII-28	1351	1405	472	0-136	25	25
100.45	31°10'	117°47'	VIII-28	1636	1650	460	0-140	65	65
100.50	31°02'	118°07'	VIII-28	1941	1956	456	0-139	61	61
100.55	30°51'	118°27'	VIII-28	2211	2226	458	0-142	87	87
100.60	30°40'	118°47'	VIII-29	0121	0136	452	0-144	66	66
100.65	30°31.5'	119°06'	VIII-29	0446	0500	444	0-142	36	36
100.70	30°21.5'	119°26'	VIII-29	0746	0801	438	0-141	37	37
100.75	30°11'	119°47'	VIII-29	1021	1036	451	0-143	38	38
100.80	30°02'	120°04'	VIII-29	1321	1336	434	0-146	32	32
100.85	29°52'	120°24'	VIII-29	1551	1605	450	0-141	40	40
100.90	29°43'	120°43'	VIII-29	1851	1905	449	0-141	49	49
103.30	31°05.2'	116°24.9'	VIII-25	1523	1529	200	0-55	646	646
103.35	30°55.9'	116°45.2'	VIII-25	1311	1326	464	0-142	30	30
103.40	30°34.2'	117°11.1'	VIII-25	0911	0926	(458)	0-139	(20)	(20)
103.45	30°27.9'	117°29'	VIII-25	0616	0630	471	0-133	13	13
103.50	30°22'	117°43.9'	VIII-25	0346	0401	478	0-134	42	42
103.55	30°14'	118°03'	VIII-25	0131	0146	461	0-139	46	46
103.60	30°06'	118°23.5'	VIII-24	2236	2250	456	0-136	42	42
103.65	29°57.5'	118°44.5'	VIII-24	2016	2030	465	0-140	62	62
103.70	29°49'	119°05.2'	VIII-24	1716	1730	431	0-142	37	37
103.75	29°39.9'	119°24.8'	VIII-24	1506	1520	492	0-127	28	28
103.80	29°27'	119°43.3'	VIII-24	1236	1250	433	0-140	83	83
103.85	29°24'	119°57.4'	VIII-24	1106	1120	448	0-141	47	47
103.90	29°14'	120°20.2'	VIII-24	0826	0840	430	0-141	44	44
107.32	30°25.8'	116°11'	VIII-22	2120	2134	417	0-140	178	178
107.35	30°20'	116°23'	VIII-22	2316	2331	(473)	0-136	(135)	(93)
107.40	30°10.5'	116°43.5'	VIII-23	0206	0220	454	0-136	62	62
107.45	30°03'	117°02'	VIII-23	0511	0526	425	0-140	45	45
107.50	29°54'	117°22.5'	VIII-23	0746	0801	423	0-140	21	21
107.55	29°41'	117°41.9'	VIII-23	1101	1115	438	0-139	25	25
107.60	29°31'	118°03'	VIII-23	1256	1310	442	0-140	14	14

Plankton volumes, Cruise 5908, August 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
107.65	29°21.5'	118°21'	VIII-23	1541	1556	427	0-139	21	21
107.70	29°11'	118°43'	VIII-23	1801	1815	446	0-137	25	25
107.75	29°02'	119°00.5'	VIII-23	2036	2051	466	0-141	39	39
107.80	28°52'	119°19.5'	VIII-23	2241	2255	460	0-140	61	61
107.85	28°42'	119°39'	VIII-24	0106	0120	434	0-141	78	78
107.90	28°34.2'	120°00'	VIII-24	0316	0330	456	0-138	61	61
110.33	29°50.5'	115°52.2'	VIII-22	1719	1724	186	0-46	75	75
110.35	29°46.5'	116°00'	VIII-22	1526	1541	478	0-131	21	21
110.40	29°36.5'	116°19.5'	VIII-22	1231	1245	480	0-137	94	94
110.45	29°26'	116°38.5'	VIII-22	1010	1026	467	0-140	51	51
110.50	29°16.5'	116°56'	VIII-22	0746	0800	450	0-142	31	31
110.55	29°07'	117°18'	VIII-22	0521	0536	471	0-140	45	45
110.60	28°57'	117°38'	VIII-22	0116	0131	451	0-142	47	47
110.65	28°46'	117°59'	VIII-21	2236	2250	447	0-142	54	54
110.70	28°36.5'	118°18'	VIII-21	1126	1140	448	0-141	16	16
110.75	28°29'	118°42'	VIII-21	0836	0850	448	0-139	16	16
110.80	28°20'	119°00'	VIII-21	0556	0610	448	0-141	18	18
113.30	29°22.5'	115°17.5'	VIII-19	2254	2258	(112)	0-27	(99)	(99)
113.35	29°12'	115°39'	VIII-20	0116	0131	434	0-140	39	39
113.40	29°02'	115°58.5'	VIII-20	0406	0420	484	0-133	29	29
113.45	28°52'	116°18'	VIII-20	0646	0700	419	0-145	24	24
113.50	28°44.5'	116°37'	VIII-20	0920	0935	478	0-140	17	17
113.55	28°32'	116°56.5'	VIII-20	1211	1226	458	0-139	13	13
113.60	28°22'	117°16.5'	VIII-20	1446	1501	488	0-133	14	14
113.65	28°12'	117°36'	VIII-20	1746	1800	457	0-138	20	20
113.70	28°02'	117°55.5'	VIII-20	1956	2010	435	0-142	44	44
113.75	27°53.5'	118°15'	VIII-20	2231	2245	453	0-140	40	40
113.80	27°44.5'	118°36'	VIII-21	0041	0055	440	0-141	43	43
117.26	28°56'	114°41'	VIII-19	1808	1816	261	0-77	437	437
117.30	28°48'	114°56.5'	VIII-19	1608	1617	280	0-83	214	214
117.35	28°38'	115°16'	VIII-19	1331	1346	478	0-139	15	15
117.40	28°28'	115°35.5'	VIII-19	0056	0110	437	0-142	25	25
117.45	28°18'	115°55.2'	VIII-18	2221	2236	441	0-142	41	41
117.50	28°08'	116°15'	VIII-18	1916	1930	(437)	0-142	(41)	(41)
117.55	27°57.7'	116°34.5'	VIII-18	1601	1616	470	0-142	51	51
117.60	27°47.5'	116°54'	VIII-18	1256	1310	472	0-142	47	47
117.65	27°38'	117°14'	VIII-18	1016	1030	468	0-141	41	41
117.70	27°27.5'	117°32.5'	VIII-18	0726	0740	481	0-143	44	44
117.75	27°17'	117°52'	VIII-18	0446	0500	496	0-141	32	32

Plankton volumes, Cruise 5908, August 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
117.80	27°08'	118°12'	VIII-18	0126	0141	485	0-141	43	43
118.39	28°18.5'	115°24'	VIII-19	0306	0320	456	0-142	46	46
119.33	28°19'	114°53'	VIII-16	1101	1112	335	0-100	18	18
120.25	28°23'	114°14.5'	VIII-16	1449	1453	162	0-43	12	12
120.30	28°13'	114°34'	VIII-16	1718	1726	261	0-78	58	58
120.35	28°03'	114°54'	VIII-16	1958	2006	260	0-79	65	65
120.40	27°56.5'	115°14'	VIII-16	2204	2207	124	0-35	48	48
120.45	27°43'	115°33'	VIII-17	0020	0035	476	0-138	50	50
120.50	27°30'	115°52.5'	VIII-17	0422	0436	503	0-134	28	28
120.55	27°18'	116°13'	VIII-17	0736	0750	425	0-142	59	59
120.60	27°05'	116°34'	VIII-17	0940	0954	496	0-137	36	36
120.65	27°03'	116°51'	VIII-17	1236	1250	424	0-140	54	54
120.70	26°52.5'	117°10'	VIII-17	1521	1536	482	0-136	25	25
120.75	26°42'	117°30'	VIII-17	1811	1826	509	0-133	24	24
120.80	26°32.5'	117°48.5'	VIII-17	2001	2016	483	0-139	68	68
123.37	27°24'	114°39.7'	VIII-16	0058	0104	191	0-56	84	84
123.42	27°14'	114°59'	VIII-15	2141	2156	441	0-143	14	14
123.45			Sample spoiled.						
123.50	27°00'	115°31.5'	VIII-15	1626	1640	496	0-144	99	99
123.55	26°48.2'	115°49.7'	VIII-15	1356	1410	496	0-138	89	89
123.60	26°32'	116°13'	VIII-15	1016	1031	504	0-138	85	85
123.65	26°23.5'	116°29'	VIII-15	0806	0820	487	0-141	43	43
123.70	26°16'	116°46'	VIII-15	0528	0542	481	0-138	46	46
127.34	26°55.3'	114°06'	VIII-14	0553	0600	237	0-53	282	282
127.40	26°43.5'	114°29.5'	VIII-14	0826	0840	501	0-136	58	58
127.45	26°33.5'	114°48.7'	VIII-14	1117	1130	535	0-139	22	22
127.50	26°23.5'	115°08'	VIII-14	1336	1350	435	0-140	60	60
127.55	26°16'	115°27'	VIII-14	1626	1640	519	0-137	58	58
127.60	26°03.5'	115°46.5'	VIII-14	1911	1926	492	0-139	104	104
127.65	25°54'	116°05.5'	VIII-14	2206	2220	452	0-140	82	82
127.70	25°44'	116°24.5'	VIII-15	0016	0030	504	0-144	65	65
130.30	26°29'	113°29'	VIII-15	2009	2016	261	0-54	99	99
130.35	26°19.2'	113°51.8'	VIII-16	0050	0107	785	0-59	69	69
130.40	26°10.8'	114°10.5'	VIII-16	0530	0545	630	0-71	78	78
130.45	25°58.5'	114°25.2'	VIII-16	0834	0849	679	0-72	31	31
130.50	25°44.3'	114°42.5'	VIII-16	1444	1459	752	0-74	28	28
130.55	25°39'	115°04.5'	VIII-16	1745	1800	738	0-76	27	27
130.60	25°35.2'	115°27.7'	VIII-16	2110	2125	764	0-71	54	54
130.65	25°19'	115°42.8'	VIII-17	0120	0135	667	0-80	102	102

Plankton volumes, Cruise 5908, August 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
130.70	25°08.7'	116°03.8'	VIII-17	0604	0619	848	0-55	107	107
133.30	25°56.2'	113°07.2'	VIII-18	2208	2224	758	0-83	210	210
133.35	25°47'	113°25.8'	VIII-18	1904	1917	686	0-76	141	141
133.40	25°35.2'	113°43.8'	VIII-18	1227	1239	673	0-74	42	42
133.45	25°24.5'	114°04.8'	VIII-18	0745	0758	516	0-104	27	27
133.50	25°21.2'	114°26.5'	VIII-18	0515	0530	637	0-106	104	104
133.55	25°06.5'	114°43.2'	VIII-18	0022	0037	931	0-70	41	41
133.60	24°55'	115°02'	VIII-17	1937	1951	603	0-105	48	48
133.70	24°31'	115°45'	VIII-17	1054	1114	979	0-63	63	63
134.36	25°34.5'	113°22.7'	VIII-19	1630	1645	1010	0-77	50	50
137.23	25°32.6'	112°22.5'	VIII-22	0603	0617	409	0-75	85	85
137.30	25°22'	112°47.5'	VIII-22	0848	0903	389	0-104	36	36
137.35	25°13.8'	113°03'	VIII-22	1409	1423	544	0-123	131	131
137.40	25°00'	113°23.8'	VIII-19	2230	2252	1311	0-116	47	47
137.45	24°53.8'	113°48'	VIII-20	0402	0426	810	0-68	36	36
137.50	24°39.8'	114°02'	VIII-20	0654	0707	824	0-63	24	24
137.55	24°29.2'	114°22'	VIII-20	1421	1435	900	0-79	24	24
140.30	24°45'	112°24'	VIII-21	2328	2343	591	0-80	203	203
140.35	24°36.2'	112°39'	VIII-22	1915	1932	419	0-91	239	239
140.40	24°25.5'	113°02.3'	VIII-23	0145	0200	1061	0-61	100	100
140.45	24°18'	113°25'	VIII-23	0432	0447	985	0-88	35	35
140.50	24°08'	113°42.5'	VIII-23	0801	0817	672	0-111	18	18
140.55	23°55'	114°01.5'	VIII-23	1555	1608	916	0-68	34	34
140.60	23°44.7'	114°22'	VIII-23	1939	1953	498	0-117	82	82
140.70	23°26'	114°55.2'	VIII-24	0305	0320	984	0-68	132	132
143.26	24°19'	111°48'	VIII-21	1600	1615	818	0-69	345	345
143.30	24°10.5'	112°03'	VIII-21	1828	1844	912	0-61	272	272
143.35	24°12.5'	112°25'	VIII-25	1720	1734	522	0-119	29	29
143.40	23°51'	112°40.3'	VIII-25	1121	1135	519	0-122	50	50
143.45	23°40'	112°58.2'	VIII-25	0644	0700	652	0-108	41	41
143.50	23°26.5'	113°19'	VIII-25	0400	0415	685	0-96	86	86
143.55	23°20'	113°39.5'	VIII-24	2207	2221	528	0-121	83	83
143.60	23°12.5'	114°04'	VIII-24	1854	1910	600	0-116	77	77
143.70	22°49.8'	114°32.5'	VIII-24	1040	1051	524	0-94	25	25
147.20	23°47.5'	110°59.5'	VIII-26	0358	0413	732	0-109	139	139
147.25	23°37.2'	111°19'	VIII-26	0637	0650	546	0-118	158	158
147.30	23°36.2'	111°49'	VIII-26	1230	1244	552	0-111	24	24
147.35	23°26'	112°00.4'	VIII-26	1540	1553	603	0-98	13	13
147.40	23°20.5'	112°15.6'	VIII-26	1806	1821	560	0-118	27	27
147.45	23°10'	112°39.7'	VIII-26	2240	2256	794	0-100	133	133
147.50	23°01.8'	113°00'	VIII-27	0300	0314	588	0-114	126	126

Plankton volumes, Cruise 5908, August 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc	cc.
147.55	22°54.2'	113°18.7'	VIII-27	0646	0559	677	0-99	80	80
147.60	22°40.2'	113°34.8'	VIII-27	0957	1010	725	0-75	102	102
150.19	23°23.8'	110°39.1'	VIII-29	0055	0109	707	0-93	126	126
150.25	23°12.2'	111°04.2'	VIII-28	1920	1934	589	0-109	70	70
150.30	23°02.2'	111°20.8'	VIII-28	1645	1700	672	0-101	27	27
150.35	22°54'	111°41.5'	VIII-28	1105	1118	714	0-92	18	18
150.40	22°48'	111°59.5'	VIII-28	0638	0652	642	0-101	76	76
150.45	22°40.8'	112°12'	VIII-28	0437	0451	697	0-111	72	72
150.50	22°27.5'	112°32.2'	VIII-28	0100	0114	778	0-90	111	111
150.55	22°14.2'	112°53.8'	VIII-27	2044	2058	595	0-110	79	79
150.60	22°02'	113°14'	VIII-27	1705	1718	564	0-114	53	53
153.16	22°55.3'	110°12.3'	VIII-29	1450	1503	610	0-103	75	75
153.25	22°39.7'	110°35.5'	VIII-29	0702	0718	582	0-109	100	100
			Plankton Volumes, Cruise 5909, September 1959						
90.28	33°28.5'	117°46.5'	IX-8	2305	2320	514	0-142	47	47
90.32	33°20.5'	118°03'	IX-9	0156	0211	518	0-142	69	69
90.37	33°10.5'	118°23.5'	IX-9	0456	0510	503	0-142	56	56
90.45	32°58'	118°56'	IX-10	1141	1156	460	0-137	30	30
90.50	32°42.5'	119°18.5'	IX-10	1536	1550	510	0-139	35	35
90.55	32°33.5'	119°37'	IX-10	1816	1830	511	0-140	22	22
90.60	32°24.5'	119°57.5'	IX-10	2141	2156	510	0-133	76	76
90.65	32°13'	120°19.5'	IX-11	0021	0036	494	0-142	124	124
90.70	32°03.5'	120°40'	IX-11	0356	0410	496	0-141	73	73
90.75	31°52'	121°05'	IX-11	0711	0726	506	0-140	28	28
90.80	31°41'	121°27.5'	IX-11	1041	1055	550	0-133	44	44
90.85	31°36.5'	121°40'	IX-11	1236	1250	513	0-139	47	47
90.90	31°25'	122°00'	IX-11	1605	1619	525	0-137	34	34
90.100	31°05'	122°39.5'	IX-11	2111	2126	501	0-144	62	62
90.110	30°43'	123°19'	IX-12	0226	0241	499	0-146	40	40
90.120	30°22.5'	123°57'	IX-12	0736	0751	541	0-134	18	18
93.28	32°54'	117°22'	IX-16	1303	1310	268	0-70	142	142
93.30	32°50.2'	117°30'	IX-16	1121	1136	502	0-143	20	20
93.35	32°36.5'	117°49'	IX-14	1656	1710	505	0-139	65	65
93.40	32°21'	118°07'	IX-14	1323	1338	537	0-130	34	34
93.45	32°13'	118°26'	IX-14	1026	1041	561	0-126	121	121
93.50	32°03'	118°46'	IX-14	0751	0806	504	0-137	14	14
93.55	31°52'	119°12'	IX-14	0416	0430	500	0-141	466	446
93.60	31°41'	119°30'	IX-14	0141	0156	495	0-142	174	174
93.65	31°30'	119°48'	IX-13	2226	2240	495	0-137	55	55
93.70	31°18'	120°07'	IX-13	1946	2001	526	0-136	51	51

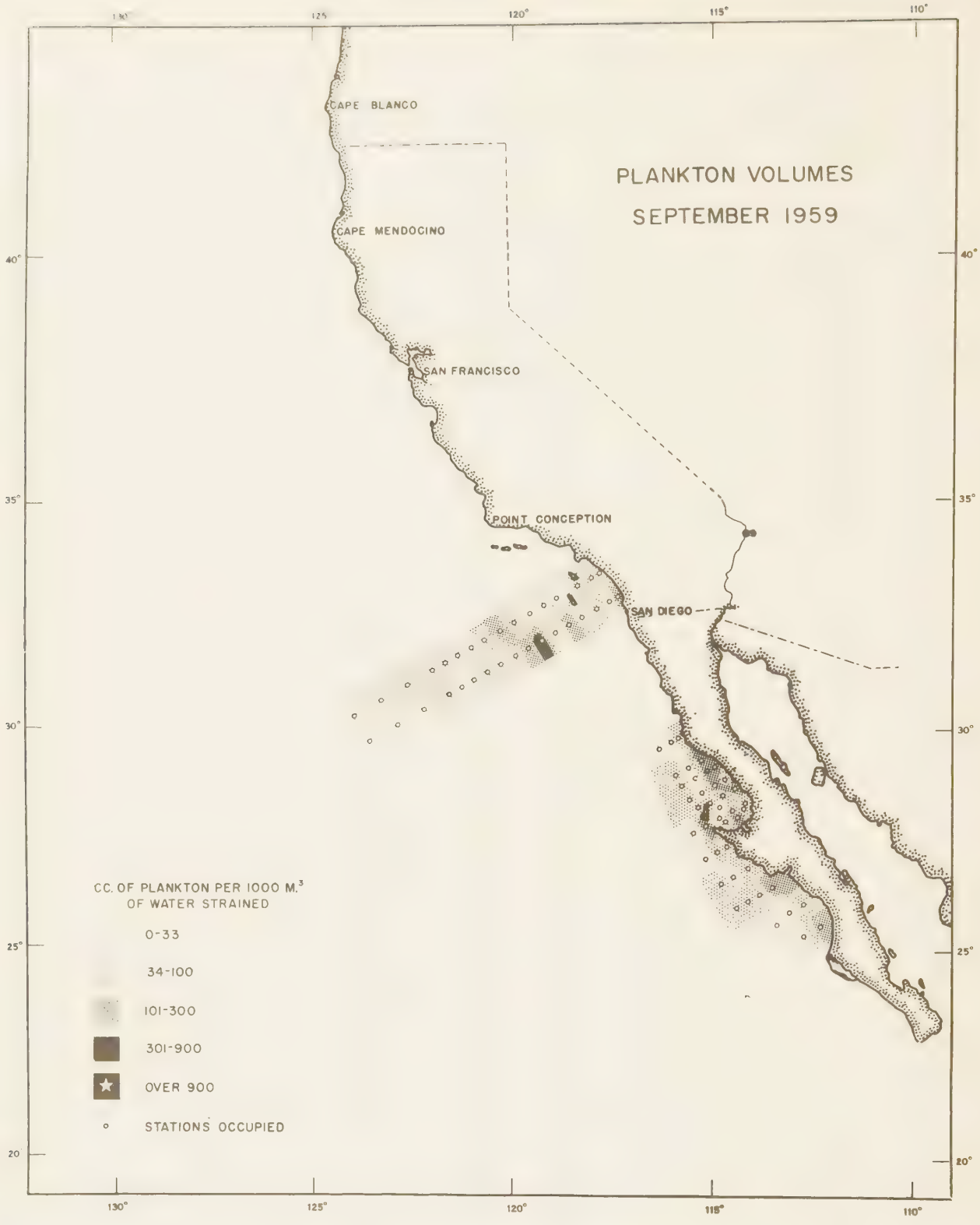

Figure 12.--Plankton volumes, September 1959.

Plankton volumes, Cruise 5909, September 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
93.75	31°14.5'	120°28.5'	IX-13	1636	1650	516	0-140	62	62
93.80	31°10.5'	120°52.5'	IX-13	1404	1419	514	0-139	21	21
93.85	30°53'	121°21'	IX-13	0957	1011	517	0-132	31	31
93.90	30°39'	121°44'	IX-13	0655	0709	505	0-139	44	44
93.100	30°21'	122°20'	IX-13	0116	0131	509	0-142	200	33
93.110	30°06.5'	122°53.5'	IX-12	1856	1910	516	0-140	31	31
93.120	29°49.5'	123°34'	IX-12	1305	1320	519	0-136	27	27
110.33	29°50'	115°52.5'	IX-22	1128	1135	241	0-70	75	75
110.35	29°46'	116°00'	IX-22	1001	1015	526	0-142	13	13
110.40	29°36.5'	116°19.5'	IX-22	0721	0736	495	0-141	32	32
113.30	29°22'	115°18'	IX-22	1644	1648	184	0-38	152	152
113.35	29°11.5'	115°38'	IX-22	1840	1856	539	0-135	33	33
113.40	29°02'	115°57'	IX-22	2215	2230	518	0-139	41	41
115.27	29°11'	114°55'	IX-23	1028	1034	213	0-55	300	300
115.30	29°05'	115°08'	IX-23	0822	0831	278	0-67	101	101
115.35	28°53'	115°28'	IX-23	0456	0510	501	0-138	32	32
115.40	28°45'	115°47'	IX-23	0120	0136	562	0-130	61	61
117.26	28°56'	114°41.5'	IX-23	1243	1251	264	0-71	83	83
117.30	28°48'	114°56.5'	IX-23	1813	1821	293	0-76	140	140
117.35	28°38'	115°16'	IX-23	2035	2050	489	0-139	31	31
117.40	28°28'	115°35.5'	IX-23	2326	2341	462	0-142	58	58
118.39	28°18.5'	115°23.7'	IX-24	0150	0206	545	0-136	42	42
$118^{5}25$	28°40.5'	114°25.5'	IX-24	1932	1940	256	0-71	238	238
$118^{5}30$	28°30.5'	114°45.5'	IX-24	1657	1706	314	0-82	70	70
$118^{5}35$	28°20.5'	115°05'	IX-24	1312	1323	334	0-100	36	36
119.33	28°19'	114°53'	IX-24	1447	1458	343	0-100	23	23
120.25	28°22.5'	114°15'	IX-24	2154	2159	174	0-38	81	81
120.30	28°13'	114°34'	IX-25	0058	0106	262	0-67	65	65
120.35	28°03'	114°54'	IX-25	0638	0646	242	0-70	25	25
120.40	27°56.5'	115°14'	IX-25	0859	0902	143	0-19	238	238
120.45	27°43'	115°33'	IX-25	1126	1140	474	0-136	25	25
$120^{7}26$	28°12.5'	114°15.5'	IX-24	2259	2302	140	0-25	57	57
$121^{2}34$	27°53'	114°43'	IX-25	0459	0502	99	0-24	91	91
$121^{3}30$	27°58.5'	114°26.5'	IX-25	0254	0258	109	0-28	157	157
123.37	27°24'	114°40'	IX-25	2028	2034	218	0-56	73	73
123.42	27°14'	114°59'	IX-25	1741	1756	487	0-142	35	35
123.45	27°08'	115°10.5'	IX-25	1611	1626	449	0-147	27	27
127.34	26°55'	114°06.5'	IX-26	0128	0135	209	0-57	53	53
127.40	26°43.5'	114°29'	IX-26	0400	0414	521	0-134	17	17
127.45	26°33'	114°48.5'	IX-26	0624	0640	537	0-136	48	48

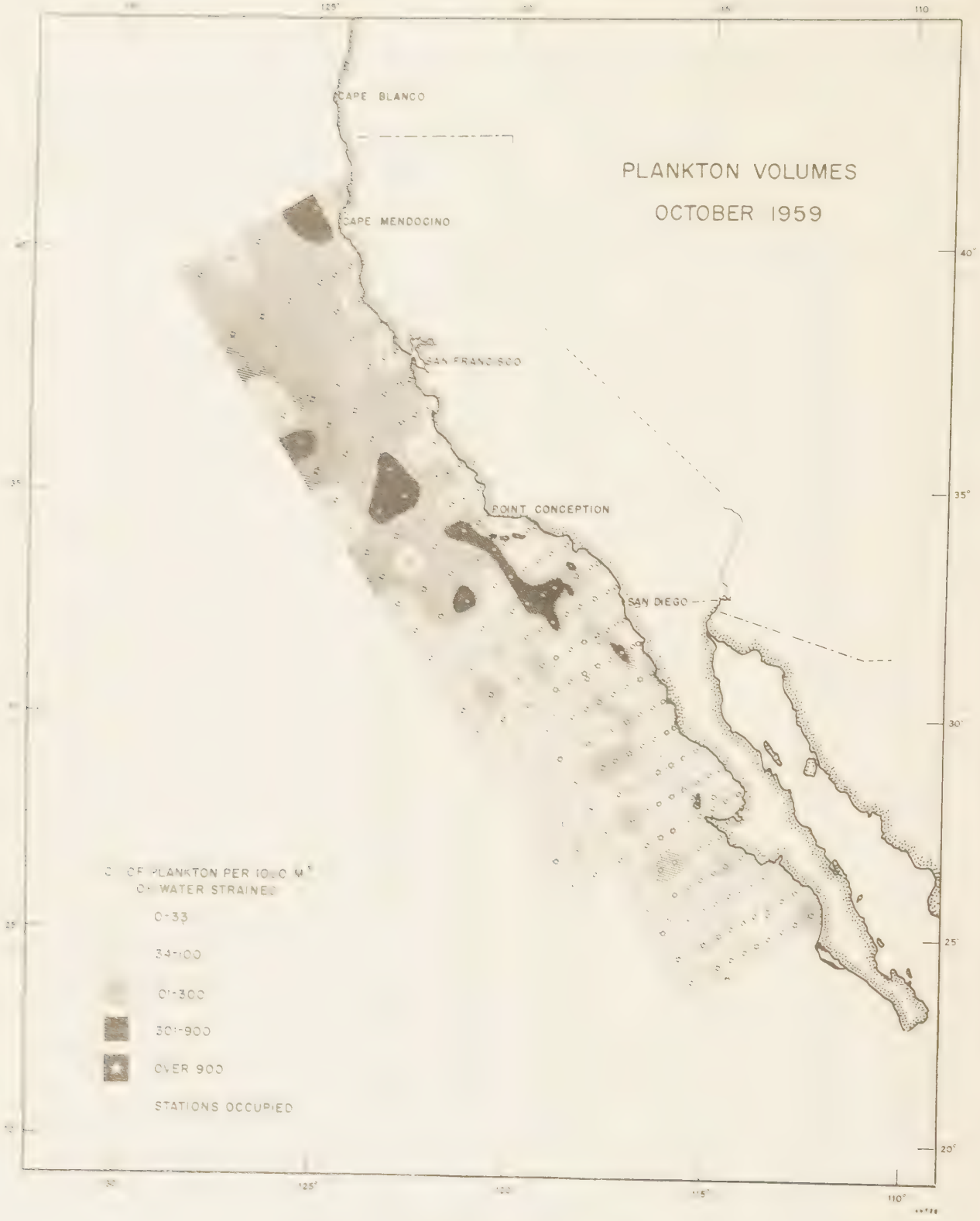

Figure 13.--Plankton volumes, October 1959.

Plankton volumes, Cruise 5909, September 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organisms
						m^3	m.	cc.	cc.
130.30	26°24'	113°29'	IX-26	1808	1814	207	0-59	155	155
130.35	26°19'	113°48'	IX-26	1551	1605	473	0-145	44	44
130.40	26°09'	114°07'	IX-26	1321	1336	489	0-141	70	70
130.45	28°58.5'	114°25.8'	IX-26	1036	1050	479	0-139	38	38
133.25	26°04.5'	112°48'	IX-27	0110	0118	251	0-72	84	84
133.30	25°54.5'	113°07.5'	IX-26	2240	2254	516	0-133	31	31
134.36	25°36'	113°22.7'	IX-27	1551	1604	445	0-125	9	9
137.23	25°34'	112°19'	IX-27	0528	0536	275	0-60	211	211
137.30	25°20'	112°44.8'	IX-27	0811	0826	463	0-137	17	17
			Plankton Volumes, Cruise 5910, October 1959						
43.42	41°04'	124°20.5'	X-26	1221	1235	524	0-107	178	178
43.45	40°58'	124°34.5'	X-26	1035	1051	533	0-128	56	56
43.50	40°48'	124°57'	X-26	0741	0756	490	0-132	306	306
43.60			Sample lost.						
43.70	40°09'	126°27'	X-25	2116	2231	525	0-118	187	187
43.80	39°48.5'	127°14'	X-25	1701	1716	502	0-126	72	72
43.90	39°28'	127°58'	X-25	1211	1225	581	0-104	164	164
50.47	39°46.2'	123°54.2'	X-24	0303	0310	253	0-65	71	71
50.50	39°40'	124°07.3'	X-24	0526	0541	481	0-138	156	156
50.55	39°29.5'	124°29.2'	X-24	0850	0906	478	0-138	157	157
50.60	39°20'	124°52'	X-24	1156	1211	527	0-111	271	271
50.70	39°00'	125°39'	X-24	1636	1651	427	0-146	157	157
50.80	38°41'	126°24'	X-24	2120	2136	486	0-143	222	222
50.90	38°19.2'	127°10'	X-25	0311	0326	570	0-117	130	130
53.52	39°02'	123°51.3'	X-23	2243	2250	272	0-60	184	147
53.55	38°56'	124°04.5'	X-23	2056	2111	397	0-158	98	98
53.60	38°46'	124°27.2'	X-23	1806	1820	477	0-139	277	277
57.51	38°30'	123°22'	X-23	0808	0816	276	0-80	40	40
57.55	38°21.5'	123°40'	X-23	1036	1051	542	0-119	140	140
57.60	38°12'	124°01.5'	X-23	1326	1340	513	0-124	123	123
60.52	37°54'	123°02'	X-23	0409	0414	222	0-53	36	36
60.55	37°47.7'	123°15.5'	X-23	0238	0246	319	0-70	85	85
60.60	37°37'	123°37'	X-23	0006	0020	547	0-103	137	137
60.70	37°19'	124°21'	X-22	1846	1901	530	0-116	191	191
60.80	36°58'	125°08'	X-22	1316	1330	503	0-130	141	141
60.90	36°36'	125°46'	X-22	0836	0851	498	0-122	94	94
63.52	37°18.8'	122°36.5'	X-21	0928	0936	263	0-61	232	232
63.55	37°12.7'	122°50'	X-21	1046	1101	469	0-148	119	119
63.60	37°02.5'	123°12'	X-21	1336	1350	503	0-124	228	145
63.70	36°42.7'	123°57'	X-21	1756	1810	464	0-136	198	198

Plankton volumes, Cruise 5910, October 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
63.80	36°23.2'	124°37'	X-21	2206	2221	502	0-122	261	261
63.90	36°03'	125°20'	X-22	0326	0340	475	0-132	404	404
67.50	36°49'	122°05'	X-19	0717	0726	(313)	0-93	(44)	(44)
67.55	36°39.5'	122°25.2'	X-19	0511	0525	443	0-144	160	160
67.60	36°29'	122°47.6'	X-19	0216	0230	365	0-158	241	181
67.70	36°11'	123°31.2'	X-18	2141	2156	485	0-135	198	175
67.80	35°48'	124°16'	X-18	1641	1656	476	0-137	263	263
67.90	35°28'	124°58.2'	X-18	1201	1215	521	0-137	196	161
70.52	36°08.5'	121°50'	X-17	1226	1240	587	0-99	24	24
70.55	36°03.3'	122°02'	X-17	1351	1405	464	0-131	86	86
70.60	35°53.5'	122°22.5'	X-17	1636	1650	467	0-133	60	60
70.70	35°33'	123°06'	X-17	2046	2102	606	0-112	684	684
70.80	35°13.5'	123°48'	X-18	0221	0235	487	0-132	226	226
70.90	34°52.8'	124°29.5'	X-18	0706	0720	485	0-141	105	80
73.51	35°35.5'	121°21'	X-17	0756	0811	464	0-127	43	43
73.55	35°29'	121°37.7'	X-17	0606	0621	452	0-140	230	230
73.60	35°20'	121°59.3'	X-17	0306	0321	504	0-125	207	207
73.70	35°01'	122°41'	X-16	2236	2251	510	0-125	428	428
73.80	34°38.5'	123°21'	X-16	1746	1800	518	0-131	606	606
73.90	34°17'	124°02'	X-16	1256	1310	529	0-124	83	83
77.50	35°04'	120°52'	X-15	1216	1229	417	0-128	31	31
77.55	34°54'	121°12.7'	X-15	1446	1500	548	0-112	80	80
77.60	34°43'	121°32.8'	X-15	1751	1806	502	0-132	82	82
77.70	34°23.2'	122°16'	X-15	2246	2301	492	0-132	286	268
77.80	34°04'	122°59'	X-16	0321	0335	(466)	0-141	(271)	(271)
77.90	33°44'	123°38'	X-16	0806	0821	470	0-139	141	141
80.52	34°25'	120°35.2'	X-15	0806	0820	458	0-106	44	44
80.55	34°19'	120°48.5'	X-15	0541	0556	488	0-131	176	176
80.60	34°09'	121°09.2'	X-15	0236	0251	466	0-133	480	480
80.70	33°47.5'	121°53'	X-14	2106	2121	404	0-151	126	126
80.80	33°28'	122°32'	X-14	1701	1716	485	0-134	70	70
80.90	33°09'	123°13'	X-14	1201	1215	509	0-132	122	122
82.47	34°15'	119°58'	X-13	0853	0911	551	0-138	16	16
83.40	34°13.8'	119°21.8'	X-12	0230	0231	38	0-6	186	186
83.43	34°07.5'	119°35'	X-12	0411	0426	485	0-144	68	68
83.51	33°51.9'	120°07.5'	X-13	1206	1217	430	0-47	37	37
83.55	33°43.8'	120°24.5'	X-13	1431	1445	559	0-109	533	533
83.60	33°34.2'	120°44.7'	X-13	1721	1735	511	0-123	119	119
83.70	33°14.4'	121°26.2'	X-13	2211	2226	630	0-95	116	116

Plankton volumes, Cruise 5910, October 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
83.80	32°54'	122°07'	X-14	0236	0251	487	0-134	158	158
83.90	32°34'	122°48'	X-14	0731	0745	478	0-138	65	65
87.35	33°50.1'	118°37.5'	X-11	2206	2221	620	0-98	60	60
87.40	33°40.2'	118°58.2'	X-11	1936	1951	510	0-120	49	49
87.45	33°30.5'	119°18.7'	X-11	1656	1710	484	0-129	25	25
87.50	33°20'	119°39.5'	X-11	1408	1415	287	0-42	70	70
87.55	33°12.1'	120°02'	X-11	1201	1215	484	0-120	450	450
87.60	33°01'	120°22'	X-11	0900	0915	491	0-109	24	24
87.70	32°41'	121°01'	X-11	0426	0441	512	0-146	312	312
87.80	32°20.2'	121°42.5'	X-10	2338	2354	435	0-108	163	163
87.90	31°58'	122°28.5'	X-10	1816	1830	406	0-149	69	69
90.28	33°28.5'	117°46.7'	X-8	2306	2322	598	0-135	42	42
90.32	33°20.5'	118°04.2'	X-9	0106	0120	589	0-107	42	42
90.37	33°10.6'	118°23.5'	X-9	0536	0552	485	0-134	130	130
90.45	32°54.6'	118°56.1'	X-9	0936	0950	475	0-141	596	596
90.50	32°44.3'	119°13.6'	X-9	1207	1218	390	0-100	393	393
90.55	32°33.1'	119°39'	X-9	1506	1521	488	0-140	338	338
90.60	32°23.7'	120°00'	X-9	1826	1840	442	0-155	86	86
90.70	32°02'	120°42.6'	X-10	0146	0201	461	0-135	4	4
90.80	31°39.8'	121°25'	X-10	0716	0730	468	0-129	4	4
90.90	31°16.6'	122°09'	X-10	1256	1310	489	0-137	43	43
93.28	32°55'	117°21.5'	X-8	1646	1700	(489)	0-140	(25)	(25)
93.30	32°50.5'	117°31.5'	X-8	2111	2126	474	0-132	30	30
93.35	32°40'	117°51.5'	X-8	0011	0026	505	0-142	46	46
93.40	32°29'	118°12'	X-9	0326	0340	492	0-140	57	57
93.45	32°20'	118°32'	X-9	0611	0626	503	0-139	60	60
93.50	32°10'	118°54'	X-9	0926	0940	528	0-134	525	525
93.55	32°02'	119°12.5'	X-9	1216	1231	471	0-143	83	83
93.60	31°50'	119°32'	X-9	1526	1541	491	0-142	41	41
93.70	31°30'	120°14'	X-9	2211	2226	426	0-141	82	82
93.80	31°08'	120°56'	X-10	0356	0410	494	0-139	61	61
93.90	Sample lost.								
97.30	32°15'	117°09'	X-12	0659	0704	(182)	0-48	(55)	(55)
97.32	32°11.5'	117°17'	X-12	0531	0546	477	0-139	42	42
97.35	32°02'	117°31'	X-12	0256	0311	485	0-142	52	52
97.40	31°53'	117°50'	X-12	0011	0025	495	0-142	180	180
97.45	31°43'	118°09'	X-11	2026	2040	529	0-136	51	51
97.50	31°34'	118°28'	X-11	1756	1811	498	0-140	28	28
97.55	31°23'	118°47'	X-11	1443	1457	476	0-141	8	8

Plankton volumes, Cruise 5910, October 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
97.60	31°08'	119°18'	X-11	1056	1110	(517)	0-125	(271)	(232)
97.70	30°50'	119°55'	X-11	0521	0536	482	0-138	50	50
97.80	30°33'	120°31'	X-10	2336	2351	498	0-144	171	171
97.90	30°16'	121°11'	X-10	1836	1851	427	0-141	68	52
100.29	31°42'	116°43.5'	X-12	1132	1144	422	0-116	90	90
100.30	31°41'	116°47'	X-12	1211	1225	490	0-146	33	33
100.35	31°31'	117°07'	X-13	1511	1525	481	0-142	327	327
100.40	31°21'	117°27'	X-13	1811	1826	(495)	0-140	(44)	(44)
100.45	31°11'	117°47'	X-13	2146	2200	482	0-133	93	93
100.50	31°00'	118°07'	X-14	0046	0100	480	0-143	90	90
100.55	30°50.5'	118°27'	X-14	0321	0336	469	0-142	58	58
100.60	30°40'	118°45'	X-14	0626	0640	484	0-140	60	37
100.70	30°18.5'	119°28.5'	X-14	1141	1155	478	0-143	46	46
100.80	29°57'	120°06'	X-14	1636	1651	490	0-141	53	39
100.90	29°36.5'	120°44'	X-14	2156	2210	547	0-128	634	46
101.50	30°48'	118°08'	X-21	0641	0656	479	0-138	29	29
103.30	31°01'	116°26'	X-16	1338	1345	223	0-61	193	193
103.35	30°51'	116°46'	X-16	0956	1011	530	0-130	98	98
103.40	30°42'	117°05'	X-16	0641	0656	481	0-141	17	17
103.45	30°32.5'	117°25'	X-16	0354	0408	503	0-142	40	40
103.50	30°23'	117°44'	X-16	0051	0106	493	0-138	116	116
103.55	30°14'	118°04'	X-15	2156	2210	505	0-135	85	85
103.60	30°04'	118°22'	X-15	1916	1930	491	0-139	57	57
103.70	29°48'	119°05'	X-15	1411	1425	484	0-142	25	25
103.80	29°22'	119°44'	X-15	0831	0846	537	0-133	34	34
103.90	29°02.5'	120°18'	X-15	0306	0320	471	0-142	55	55
107.32	30°26'	116°12'	X-16	1806	1820	505	0-140	57	57
107.35	30°20'	116°23'	X-16	2011	2026	533	0-134	41	41
107.40	30°11'	116°43.5'	X-16	2311	2326	557	0-133	56	56
107.45	30°02'	117°03'	X-17	0146	0201	504	0-140	101	101
107.50	29°52'	117°22.5'	X-17	0456	0510	459	0-139	65	65
107.55	Sample lost.								
107.60	29°32'	118°02'	X-17	1036	1050	554	0-130	67	67
107.70	29°13'	118°37'	X-17	1750	1804	496	0-139	48	48
107.80	28°51'	119°19'	X-17	2336	2350	482	0-146	77	77
107.90	28°32.5'	120°01'	X-18	0501	0516	496	0-138	32	32
110.33	29°50'	115°52'	X-20	1413	1420	265	0-68	94	94
110.35	29°44.5'	116°00'	X-20	1241	1255	500	0-140	10	10
110.40	29°37'	116°18'	X-20	0901	0916	541	0-135	26	26

Plankton volumes, Cruise 5910, October 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST)		Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained	
				Start	End			Total	Small organism
						m^3	m.	cc.	cc.
110.45	29°26'	116°38'	X-20	0553	0608	494	0-141	55	55
110.50	29°16'	116°59'	X-20	0311	0326	487	0-136	109	109
110.55	29°06'	117°19'	X-19	2351	0006	(492)	0-140	(124)	(124)
110.60	28°56'	117°38.5'	X-19	2121	2136	531	0-136	228	228
110.70	28°37'	118°16'	X-18	2206	2220	540	0-133	96	96
110.80	28°14.5'	118°55'	X-18	1611	1626	511	0-141	59	59
110.90	28°00'	119°41'	X-18	0941	0956	557	0-125	27	27
113.30	29°22'	115°18'	X-29	0916	0920	167	0-32	60	60
113.35	29°11.5'	115°38'	X-29	0602	0617	528	0-137	19	19
113.40	29°02'	115°57'	X-29	0306	0320	503	0-138	34	34
113.45	28°54.5'	116°20'	X-29	0026	0041	485	0-142	89	89
113.50	28°43'	116°39'	X-28	2151	2206	508	0-138	41	41
113.55	28°32'	116°57'	X-28	1915	1930	464	0-144	47	47
113.60	28°22'	117°16.5'	X-28	1612	1626	524	0-135	52	52
113.70	28°04'	117°53'	X-28	1116	1130	501	0-135	18	18
113.80	27°42.5'	118°32'	X-28	0526	0541	474	0-143	32	32
113.90	27°22'	119°12'	X-28	0006	0021	464	0-142	45	45
117.26	28°56'	114°41.5'	X-25	1658	1705	229	0-65	31	31
117.30	28°48'	114°56.5'	X-25	1916	1927	394	0-75	30	30
117.35	28°38'	115°16'	X-25	2201	2215	507	0-138	32	32
117.40	28°28'	115°35.5'	X-26	0036	0051	506	0-132	43	43
117.45	28°18'	115°56'	X-26	2033	2047	514	0-133	86	86
117.50	28°08'	116°15'	X-26	2251	2306	501	0-136	56	56
117.55	27°58'	116°34.5'	X-27	0200	0216	533	0-139	45	45
117.60	27°48'	116°53'	X-27	0416	0431	473	0-143	114	114
117.70	27°30'	117°32.5'	X-27	0916	0930	508	0-136	45	45
117.80	27°12'	118°10.5'	X-27	1348	1402	473	0-144	36	36
117.90	26°48'	118°50.5'	X-27	1839	1854	515	0-140	47	47
118.39	28°18.5'	115°23.7'	X-26	0310	0325	491	0-140	51	51
119.33	28°19'	114°53'	X-25	0701	0711	336	0-102	66	66
120.25	28°22.5'	114°15'	X-25	1134	1139	201	0-48	35	35
120.30	28°13'	114°34'	X-25	0913	0921	330	0-81	76	76
120.35	28°03'	114°54'	X-25	0427	0434	237	0-64	97	97
120.40	27°56.5'	115°14'	X-24	1544	1548	150	0-37	80	80
120.45	27°43'	115°33'	X-24	1241	1255	501	0-145	26	26
120.50	27°33'	115°52.5'	X-24	0951	1006	490	0-142	39	39
120.55	27°25'	116°13'	X-24	0716	0730	510	0-137	47	47
120.60	27°10'	116°38'	X-24	0333	0348	527	0-140	68	68
120.70	26°52'	117°13'	X-23	2236	2251	508	0-137	55	55

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
120.80	26°34'	117°49'	X-23	1736	1751	515	0-141	37	37
120.90	26°13'	118°27'	X-23	1306	1321	496	0-142	26	26
123.37	27°24'	114°40'	X-22	0422	0428	268	0-47	37	37
123.42	27°14'	114°59'	X-22	1121	1136	514	0-140	45	45
123.45	27°08'	115°11.5'	X-22	1331	1346	521	0-136	58	58
123.50	27°00'	115°31'	X-22	1601	1616	509	0-138	61	61
123.55	26°47.8'	115°49.5'	X-22	1911	1926	510	0-137	124	124
123.60	26°38.5'	116°09'	X-22	2133	2147	539	0-136	104	104
123.70	26°19'	116°47'	X-23	0234	0249	540	0-137	46	46
127.34	26°55'	114°06.5'	X-21	2313	2319	243	0-53	78	78
127.40	26°43.5'	114°29'	X-21	1926	1941	493	0-144	152	152
127.45	26°33'	114°48.5'	X-21	1646	1701	493	0-144	53	53
127.50	26°23'	115°09.5'	X-21	1336	1351	516	0-142	68	68
127.55	26°13.5'	115°27'	X-21	1101	1118	652	0-172	61	61
127.60	26°03.5'	115°46.5'	X-21	0811	0826	494	0-137	49	49
127.70	25°44'	116°24.5'	X-21	0323	0337	479	0-143	42	42
130.30	26°29'	113°29'	X-20	0057	0106	285	0-68	42	42
130.35	26°19'	113°48'	X-20	0316	0330	474	0-141	19	19
130.40	26°08.2'	114°08.5'	X-20	0559	0613	477	0-146	23	23
130.45	25°58.5'	114°26.5'	X-20	0851	0905	496	0-139	36	36
130.50	25°52'	114°46.6'	X-20	1109	1123	506	0-136	87	87
130.55	25°40'	115°06'	X-20	1445	1500	510	0-140	33	33
130.60	25°29'	115°24'	X-20	1706	1721	499	0-140	30	30
130.70	25°09'	116°02'	X-20	2151	2206	499	0-142	60	60
133.25	26°04.5'	112°48'	X-19	1918	1926	251	0-72	76	76
133.30	25°54.5'	113°07.5'	X-19	1631	1645	477	0-145	13	13
133.35	25°44.5'	113°26.5'	X-19	1356	1411	497	0-141	12	12
133.40	25°34.5'	113°45.5'	X-19	1011	1026	523	0-139	21	21
133.45	25°24'	114°05'	X-19	0726	0740	510	0-138	31	31
133.50	25°15.5'	114°28'	X-19	0326	0340	497	0-137	44	44
133.55	25°05.2'	114°45'	X-19	0044	0059	551	0-135	62	62
133.60	24°54.5'	115°02'	X-18	2056	2110	500	0-141	70	70
133.70	24°34.5'	115°39'	X-18	1515	1530	532	0-144	36	36
134.36	25°37.5'	113°24.8'	X-19	1252	1303	394	0-108	20	20
137.23	25°34'	112°19'	X-17	0026	0031	204	0-41	137	137
137.30	25°20'	112°46'	X-17	0351	0406	553	0-140	54	54
137.35	25°10'	113°04.5'	X-17	0626	0641	550	0-137	15	15
137.40	25°00'	113°23.5'	X-17	0916	0930	503	0-139	20	20
137.45	24°50'	113°43'	X-17	1216	1231	524	0-141	40	40

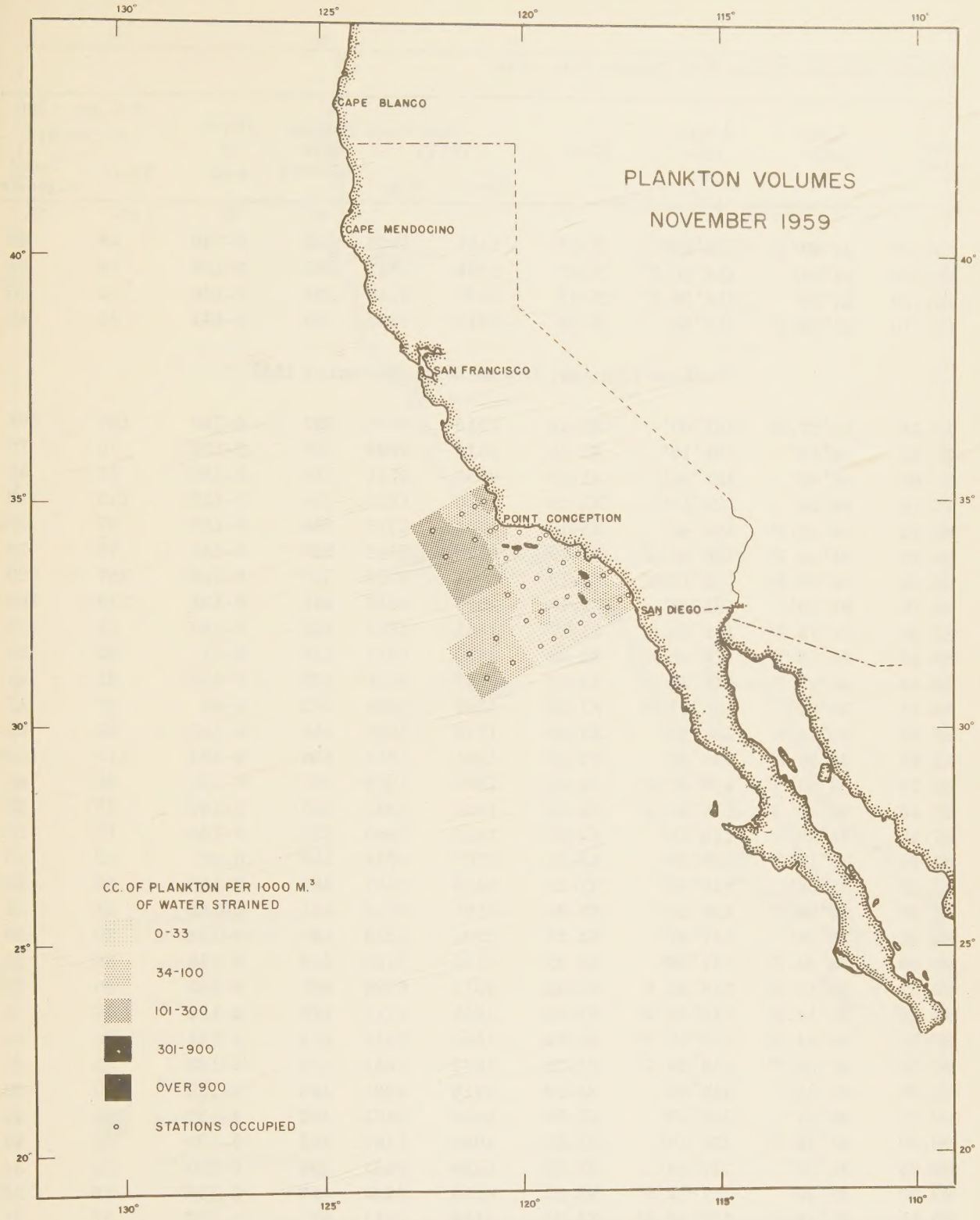

Figure 14.--Plankton volumes, November 1959.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
137.50	24°40'	114°02'	X-17	1451	1506	528	0-140	46	46
137.55	24°30'	114°20.5'	X-17	1806	1821	565	0-136	44	44
137.60	24°20'	114°39.5'	X-17	2031	2046	502	0-140	46	46
137.70	23°58.5'	115°23'	X-18	0316	0330	500	0-141	48	48
			Plankton Volumes, Cruise 5911, November 1959						
77.53	34°57.3'	121°06'	XI-18	0015	0030	523	0-120	107	107
77.55	34°54'	121°13'	XI-18	0311	0326	527	0-122	70	70
77.60	34°43'	121°34'	XI-18	0656	0711	510	0-133	43	43
77.70	34°24'	122°16'	XI-18	1310	1324	514	0-122	113	113
80.53	34°22.5'	120°40'	XI-19	1000	1015	466	0-139	37	37
80.55	34°18.5'	120°48.3'	XI-19	0826	0840	529	0-144	78	78
80.60	34°06.5'	121°12.5'	XI-19	0254	0308	569	0-126	167	153
80.70	33°50'	121°48'	XI-18	2020	2035	484	0-138	219	196
82.47	34°13.7'	119°58.5'	XI-17	1341	1356	530	0-130	13	13
83.40	34°13.7'	119°21.5'	XI-20	0430	0431	100	0-11	20	20
83.43	34°07.5'	119°34'	XI-20	0641	0656	469	0-134	21	21
83.51	33°52'	120°07.5'	XI-20	1242	1252	302	0-98	17	17
83.55	33°44.5'	120°23'	XI-20	1516	1531	485	0-140	33	33
83.60	33°36.8'	120°40'	XI-20	1901	1916	634	0-124	115	115
87.35	33°50'	118°37.5'	XI-21	1631	1646	497	0-124	40	40
87.40	33°40'	118°58.2'	XI-21	1326	1341	433	0-140	23	23
87.45	33°29.5'	119°18'	XI-21	1026	1040	522	0-133	10	10
87.50	33°19.5'	119°39'	XI-21	0709	0714	190	0-48	16	16
87.55	33°08'	119°55'	XI-21	0436	0451	487	0-138	29	29
87.60	32°58.5'	120°20'	XI-21	0101	0116	431	0-152	51	51
90.28	33°28'	117°47'	XI-21	2301	2316	490	0-123	20	20
90.30	33°24.5'	117°55'	XI-22	0111	0125	476	0-135	36	36
90.37	33°10.5'	118°23.5'	XI-22	0511	0526	507	0-133	39	39
90.45	32°54.5'	118°56.5'	XI-22	1056	1111	479	0-136	6	6
90.50	32°44.5'	119°17.5'	XI-22	1501	1515	444	0-141	34	14
90.55	32°34.7'	119°38.5'	XI-22	1841	1856	488	0-133	35	35
90.60	32°25'	119°59'	XI-22	2216	2231	493	0-132	20	20
90.70	32°07'	120°42'	XI-23	0436	0451	496	0-130	62	62
90.80	31°42.5'	121°18'	XI-23	1046	1100	434	0-153	48	48
93.28	32°55'	117°23'	XI-25	0426	0441	499	0-130	34	34
93.30	32°50'	117°31.5'	XI-25	0206	0220	499	0-126	36	36
93.35	32°40.5'	117°52.5'	XI-24	2156	2211	511	0-127	51	51
93.40	32°30.5'	118°12.7'	XI-24	1816	1830	481	0-141	19	19
93.45	32°19.5'	118°32'	XI-24	1411	1426	436	0-147	5	5

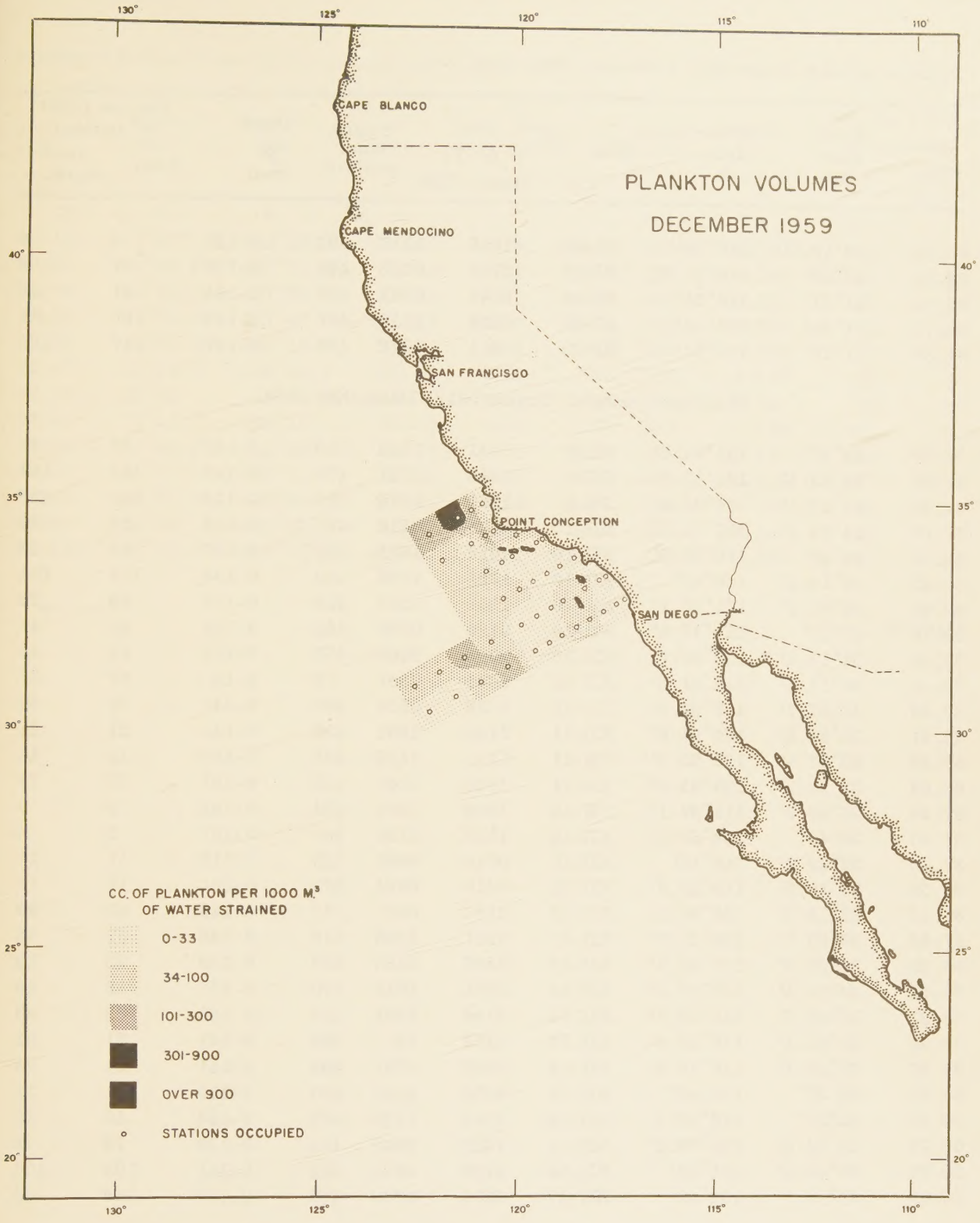

Figure 15.--Plankton volumes, December 1959.

Plankton volumes, Cruise 5911, November 1959.--Con.

Station	Latitude N.	Longitude W.	Date	Hour (PST) Start	Hour (PST) End	Volume water strained	Depth of haul	Vol. per 1,000 m^3 strained: Total	Vol. per 1,000 m^3 strained: Small organism
						m^3	m.	cc.	cc.
93.50	32°10.5'	118°56'	XI-241	1056	1110	492	0-138	4	4
93.55	32°00'	119°15.5'	XI-24	0731	0745	448	0-138	7	7
93.60	31°51'	119°31'	XI-24	0446	0501	457	0-144	31	31
93.70	31°30'	120°12'	XI-23	2236	2250	461	0-135	65	65
93.80	31°10'	120°54'	XI-23	1611	1626	496	0-131	117	117
		Plankton Volumes, Cruise 5912, December 1959							
77.53	34°57'	121°04.7'	XII-9	1451	1506	483	0-142	21	21
77.55	34°52.5'	121°13.5'	XII-9	1656	1711	476	0-142	118	118
77.60	34°43.5'	121°33.4'	XII-9	1951	2006	523	0-124	335	335
77.70	34°25.5'	122°11.6'	XII-10	0101	0116	475	0-143	156	156
80.53	34°20'	120°36.5'	XII-10	1916	1931	490	0-137	45	45
80.55	34°14.3'	120°47'	XII-10	1651	1706	482	0-134	104	104
80.60	34°08.9'	121°10.1'	XII-10	1301	1316	456	0-141	26	26
80.70	33°55'	121°48.5'	XII-10	0726	0740	464	0-138	47	47
82.47	34°15.3'	119°58.4'	XII-10	2346	2400	451	0-143	49	49
83.40	34°13.4'	119°21.3'	XII-11	0354	0357	75	0-13	67	67
83.43	34°07.7'	119°34.3'	XII-11	0536	0550	467	0-143	30	30
83.51	33°51.5'	120°07.6'	XII-11	1146	1201	436	0-141	21	21
83.55	33°43.2'	120°23.3'	XII-11	1411	1426	442	0-143	14	14
83.60	33°30.3'	120°43.5'	XII-11	1826	1840	453	0-137	75	75
87.35	33°48.3'	118°39.1'	XII-12	1336	1351	454	0-142	9	9
87.40	33°40'	118°58.5'	XII-12	1106	1120	500	0-129	6	6
87.45	33°29.2'	119°18'	XII-12	0746	0800	528	0-116	11	11
87.50	33°19.3'	119°39.6'	XII-12	0518	0524	203	0-55	10	10
87.55	33°12.2'	120°00.6'	XII-12	0146	0201	475	0-143	99	99
87.60	33°00.7'	120°21.5'	XII-11	2311	2326	479	0-125	52	52
90.28	33°27.2'	117°45.9'	XII-13	0436	0450	459	0-136	22	22
90.32	33°20.4'	118°02.8'	XII-15	1831	1845	479	0-137	15	15
90.37	33°08.5'	118°23.2'	XII-15	2146	2201	475	0-142	63	63
90.45	32°55.4'	118°55.8'	XII-16	0156	0211	469	0-141	81	81
90.50	32°46.4'	119°16.6'	XII-16	0506	0521	464	0-141	24	24
90.55	32°37'	119°38'	XII-16	0806	0820	450	0-139	11	11
90.60	32°25'	119°58.1'	XII-16	1106	1120	498	0-124	10	10
90.70	32°04.5'	120°38.2'	XII-16	1626	1640	482	0-135	79	79
90.80	31°45.1'	121°13'	XII-16	2156	2211	462	0-141	104	104
90.90	31°26.1'	121°49'	XII-17	0316	0330	461	0-140	145	50